

## **Recreation (this was an optional lunch time discussion)**

There was discussion about the potential of developing off-highway vehicle use areas that would be managed pro-actively to be competitive for available funds and attract organized users to the area. Some mentioned the advantages to include economic boost to area, management and resource protection, and meets the desires of some users. Others voiced the disadvantages as being overly restrictive for some users, resource damage in some areas, overly promotes area and brings people related problems (vandalism, etc )

## **General Messages**

There were some points that appeared to be raised in every issue discussion. Due to the frequency of these points surfacing, it can be concluded that the groups agreed and felt strongly about the following points

- a Site-specific emphasis came up in all areas
- b Monitoring funding should be tied to project funding up-front. If you can't monitor, don't do it.
- c Forest standards and "best management practices" need to be more objective and less subjective
- d Need to address the impacts from surrounding Forests and communities on the local area (subregional analysis)

## **C Comment Summaries and Forest Service Response**

The number of comments about a subject area is a general indication of the intensity of interest in that subject. The following is a summary of people's concerns about the various subject areas. Each comment summary is followed by the Forest Service response to those concerns.

## **REQUESTS TO ANALYZE ADDITIONAL ALTERNATIVES**

### **Comment Summary**

During the public review and comment period, the Forest was requested to analyze three additional alternatives. The first two requests were made by the Grant County Conservationists, for the "Grant County Conservationist Alternative" (GCC) and also an alternative called the "Citizen's Multiple Use Alternative" (CMUA). The latter alternative was developed by a coalition including the Grant County Conservationists, the Oregon Natural Resources Council, the Oregon Hunters Association, the Oregon Wildlife Federation, and other organizations. A considerable number of form letters were received suggesting that we adopt the "Citizen's Multiple Use Alternative."

Also during the comment period, a coalition of timber industry representatives developed their own alternative, "Alternative Preferred-Plus - The Community Oriented Plan." Again, a considerable number of form letters were received suggesting that we adopt "Alternative Preferred-Plus" as our preferred alternative. This alternative was also supported by such industry organizations as Associated Oregon Loggers, Northwest Forest Resource Council, the Northwest Forestry Association, and the Western Forest Industries Association.

### **Forest Service Response**

Under the National Environmental Protection Act regulations, Federal agencies are Response required to consider all reasonable alternatives when preparing Environmental Impact Statements. If comments on the Draft EIS suggest that alternatives not analyzed in the Draft EIS should be considered, the agency must give them serious consideration.

Three alternatives were submitted for review. Meetings throughout the spring and early summer of 1988 with advocates of the GCC, CMUA, and Preferred-Plus alternatives provided the information necessary to model these alternatives, using FORPLAN analysis to describe resource outputs. However, these alternatives were eliminated from detailed study (Final EIS, Chapter II, Section B). These were not developed in detail, either because they closely resembled other alternatives which were developed in detail, or because they were determined not to be fully implementable alternatives. In addition, these alternatives do not incorporate all technical corrections, nor are brought up to current Forest conditions. A summary of the three alternatives is described below.

#### *Grant County Conservationist Alternative (GCC)*

This alternative was modeled with no set goal for allowable sale quantity. All roadless areas were retained, with no scheduled harvests. Alternative C-Modified is a fully-developed alternative with similar resource outputs:

- a. Riparian zones were to have no scheduled timber harvests
- b. Foreground visual prescription was applied to a maximum of acres
- c. Old growth was set at 120,000 acres, excluding roadless or wilderness areas
- d. Uneven-aged timber management was to be featured on a majority of acres

#### *Citizens Multiple-Use Alternative (CMUA)*

This alternative was similar to the GCC alternative, but with an allowable sale quantity target of 203 MMBF per year (roughly 35 MMCF per year), in an attempt to portray a historic level of timber offering for a 10 year time period (1977-86). Alternative C-Modified is a fully-developed alternative that comes very close to the theme of this alternative design in terms of land allocations:

- a. All roadless areas were retained as roadless, with no scheduled harvests
- b. Riparian zones were to have scheduled harvests, but very low ones
- c. Old growth set at 75,000 acres, excluding roadless and wilderness areas
- d. Uneven-aged timber management is featured on 30 percent of acres or more.

#### *Preferred-Plus Alternative*

The allowable sale quantity target of 260 MMBF per year (roughly 45 MMCF per year) was closely approximated within the FORPLAN run, as more acres were allocated to timber management than with the Proposed Forest Plan. Alternative B-Modified comes very close to this proposal for both land allocation and resource outputs:

- a. Roadless areas were scheduled for harvest, except for Vinegar Hill-Indian Rock
- b. Old growth outside of wilderness/roadless areas was set at about 45,000 acres
- c. Even-aged timber management was featured on most acres
- d. Uneven-aged management was retained in riparian/foreground visual zones

### Summary of Trade-offs Between Additional Alternatives

Allocation of acres by Management Emphasis	Proposed Alternative Design			Detailed Alternative	
	Preferred-Plus	CMUA	GCC	B-Mod	C-Mod
Allowable Sale Quantity	(Decade 1)				
ASQ (MMCF/year)	45 3	34 1	23 8	44 0	25 5
ASQ (MMBF/year)	259 1	197 9	136.1	252.0	146.0
(land allocations in thousand acres)					
Even-Aged Timber Management Prescriptions	867 944	571 981	344 321	866 977	568 304
Uneven-Aged Timber Management Prescriptions	N/A	158 364	267 400	89 806	202 083
Visual Foreground Prescription	64 247	65 776	136.828	57 335	133 990
Riparian Zone Timber Harvest Prescription	45 604	36 660	0	44 607	0
Roadless Area Retained	13 322	180 948	193 064	13.322	193 064
Total Old Growth Outside of Roadless/Wilderness	44 860	75 000	120.000	43.600	47 930

### AMERICAN INDIAN RIGHTS

#### Comment Summary

The Confederated Tribes of the Umatilla and the Columbia River Inter-Tribal Fish Commission were the primary, though not the only, respondents on the treatment of American Indian Rights in the planning process. They pointed out that the Forest has a stewardship responsibility to ensure that the treaty rights of the Tribes are protected. While all treaty rights were of concern, the fishing rights were discussed the most. Specific comments by these respondents about effects on fisheries are discussed under that issue, however, in terms of treaty rights, they noted that tribal members consider the inability to exercise their fishing rights to be a direct social impact. They requested that the planning documents devote consideration to the Tribes' interests and that those documents should reflect coordination with efforts to increase the Columbia River anadromous fisheries. Another respondent noted that the impact of recent Indian fishing cases on allocation of fish stocks was discussed, but the extent that other outputs would be reduced to fulfill those court opinions was not discussed. It was also noted that the planning documents did not identify where American Indian religious sites are located and how the Forest intends to protect these sites or mitigate impacts which interfere with or impair the religious freedom rights.

#### Forest Service Response

Certain treaty rights apply to sections of Malheur National Forest lands in regard to hunting, fishing and gathering. Furthermore, there is strong interest in the management of fisheries habitat on portions of streams tributary to the Columbia River.

Treaty rights and privileges have been evaluated and are incorporated into the Final EIS (Chapters II and III). These same considerations will extend to project plans as well. The Forest has made a strong effort to coordinate the land management planning effort with tribal plans and programs and intends to continue with this effort in the future.

The Forest is a primary rearing and spawning area for anadromous fish due to its location in the headwaters of the Columbia River system. As a result of treaty obligations, the Forest's responsibilities include management of salmon and steelhead habitat. Management responsibilities and the effects of management activities are discussed in the Final EIS (Chapters III and IV, and Appendix H)

In 1978, PL 95-341, the Joint Resolution on American Indian Religious Freedom was enacted. It was enacted to ensure that Federal lands are managed in a manner that does not impair the exercise of traditional American Indian religion, and access to sites and use and possession of sacred objects. The law requires Federal agencies such as the Forest Service to review policies and procedures in consultation with native traditional religious leaders to determine appropriate changes necessary to protect and preserve American Indian religious rights and practices. The Malheur National Forest has and will continue to coordinate with all appropriate tribes in planning. During environmental analysis we will consider American Indian traditional religious rights and values. We will also notify tribal leaders or their designated representatives for comments. To date the Forest has no inventory of spiritually significant areas. We plan to conduct inventories in cooperation with appropriate Native American groups. Special use permits can be provided for spiritual camps that provide exclusion of others to assure Indians their right to privacy. (FEIS, Appendix H)

#### **BALD EAGLE WINTER ROOSTS**

##### **Comment Summary**

There were some concerns expressed about the standards for Management Area 5, particularly regarding how activities would be restricted and during what time periods. The Forest was urged to prohibit motorized recreation in these areas by one respondent. Another respondent urged us to perpetuate the old-growth condition of the roost sites and provide for replacement sites when the stand becomes decadent. We were also asked to overlap this allocation with a dedicated old-growth allocation.

##### **Forest Service Response**

The Forest management direction for Bald Eagle Winter Roosts, Management Area 5, contains standards restricting recreation, road use, and management activities when bald eagle roosts are occupied. The Forest Plan (Chapter IV, Section F) includes a standard requiring maintenance of existing and potential roosting habitat for future use by bald eagles in Management Area 5. Old growth allocations were distributed throughout the Forest using a formula developed to meet the management requirements for pileated woodpecker and pine marten (FEIS, Appendix G). The primary roosting area for bald eagles is along the southern fringe of the Forest. Several old growth allocations are in Management Area 5, but concentration of old-growth habitat along the southern fringe of the Forest would not meet management objectives for old-growth dependent species such as pileated woodpecker and pine marten.

#### **BIG GAME**

##### **Comment Summary**

The public was generally dissatisfied with the habitat modeling process used by the Forest. Oregon Department of Fish and Wildlife, Oregon Natural Resources Council, and others expressed concern that the process provided inaccurate and misleading information, it did not follow the elk habitat effectiveness index, including procedures for estimating elk habitat capability in eastern Oregon. Northwest Forestry Association expressed concern that public pressure to use this modeling process would unnecessarily constrain timber harvest. They felt that the forage model used in the DEIS is comparable to the Habitat Effectiveness Index model.

*Considerable numbers of comments were also made in relation to cover and cover/forage ratios. Many comments surfaced on winter range management. Some respondents felt that timber yields on winter range should be less than that of timber emphasis areas, that the plan should require specific winter range improvement practices, and that winter*

range maintenance goals should be clarified and strengthened. Others felt that normal timber yields would provide proper cover in many cases.

There was also concern expressed by Oregon Natural Resources Council and the general public over the lack of a specific road closure policy in summer and winter range. Numerous reasons were provided in support of a road closure policy, including increasing elk habitat effectiveness, providing elk escape areas, and providing for a quality non-motorized hunting experience. Support for a specific road closure policy for elk habitat was expressed by the State of Oregon, much of the public, and was included in both the Preferred-Plus Alternative and Citizen's Multiple-Use Alternative. Northwest Forestry Association stated that the adverse effects of open roads were of much greater concern than timber harvest itself.

Oregon Natural Resources Council and others requested that we identify population goals for elk by specific state management units and specific winter ranges, the need to resolve conflicts between road management policies and State goals for harvest and solitude of wintering big game, the need to address the Challenge Cost-Share Program - Sikes Act, and the need to implement and monitor cover/forage ratios on an area basis smaller in size than TRI compartments (3,000 to 5,000 acres, possibly third order watersheds). The particular concern of this last comment is that structural contrast and age class diversity is lacking between adjacent managed forest stands (i.e., stands 4-5 feet tall) and adjacent recently harvested regeneration cuts, shelterwoods, and clearcuts. The Northwest Forestry Association stated that timber management would further improve big-game habitat and access management would mitigate concerns about "quality" hunting opportunities. They stated that the Plan should not change in its use of timber management as a tool to improve big-game habitat.

Confederated Tribes of the Umatilla Indian Reservation stated that mule deer have not been protected adequately, and recommend that mule deer become an identified indicator species.

#### Forest Service Response

The habitat modeling process has been changed in response to public comments and to achieve consistency with adjacent National Forests. Habitat capability and population trends have been computed based on an elk winter range Habitat Effectiveness Index (HEI) Model devised by Thomas et al. (1988), and the model is applied to both winter and summer ranges. The model is based on preference of elk for types of habitat. It consists of three variables: size and spacing of cover, cover quality, and open road density. Outputs include both total acres of cover produced and acres of cover of different quality levels (satisfactory, marginal and non-cover). The model assumes that forage needs would be met in all areas.

Minimum Habitat Effectiveness Index (HEI) levels required by the Forest Plan (Chapter IV) vary with Management Area. The objective will be HEI of 0.7 (40% total cover) in Wildlife Emphasis Management Areas, 0.5 (25% total cover) in winter range, and 0.4 (20% total cover) in summer range.

Timber harvest will not be constrained in big-game winter range as long as a minimum HEI of 0.5 is maintained with 10% satisfactory cover and 25% total cover. Winter range improvement practices will include burning, seeding and planting to improve forage.

Forest-wide management standards (Forest Plan, Chapter IV, Section E) permit road or area closures to achieve wildlife habitat management objectives. Specific road closures will be addressed in the future by an Access Management Plan that will be updated annually. The Forest will continue to request matching funds for fish and wildlife habitat improvement programs from the Challenge Cost-share Program.

*The Habitat Effectiveness Index Model, as identified in Alternative I, is based on sub-watershed units (3,000 to 15,000 acres). Big-game habitat will be managed for and monitored using these unit configurations*

*The Final EIS and Forest Plan deal with habitat capability rather than populations, and the Plan does not provide population goals for elk by specific State management units and specific winter ranges. These management units and winter ranges include private land. Population levels vary for many reasons other than habitat quality (e.g. birth and death rates, reproductive rates, mortality due to hunting, disease, weather, stress, accidents, predation, etc.). Management of big-game habitat influences, but does not totally control, big game numbers*

*Mule deer are an important big-game species on the Malheur National Forest, but are not included as an indicator species. It is assumed that habitat requirements for elk are more restrictive, therefore, elk management will achieve mule deer management objectives. It is recognized that mule deer use different forage and somewhat different winter ranges, and do not need as much cover as elk. Yet, for the purposes of the Forest Plan, these differences in habitat preferences were assumed not to be significant on the Malheur National Forest.*

#### **BOARD FOOT/CUBIC FOOT RATIO**

##### **Comment Summary**

We received eight responses on this issue, all from forest industry organizations or forest personnel. These respondents questioned the use of a static conversion factor over time and the use of the same conversion factor in all alternatives. In addition, we received much comment which doubted whether we could sustain projected future board foot volumes while managing for smaller-diameter trees. This reflects concern with our methodology for projecting future yields.

Use of a constant conversion ratio over time may not provide an accurate reflection of future board foot volumes, since the average tree size harvested in the future under intensive management, in most alternatives, will be considerably smaller in diameter than the average tree harvested today. It also may not be consistent to use the same conversion ratio for alternatives which manage for smaller diameter mixed conifer species in the future as that used for alternatives which manage for large diameter ponderosa pine. Other Forests in the Region have used different conversion ratios for existing and future stands. The Ochoco NF, for example, used a variable conversion ratio over time. In their Draft EIS, the Ochoco NF displayed a flat or non-declining cubic foot output over time for most alternatives, but a declining board foot output over time.

##### **Forest Service Response**

Cubic foot measurements of a tree are more accurate estimates of the total wood fiber volume contained in the tree. The Forest program development and target attainment will be based on the cubic feet calculated for planned sale activity.

The difference in conversion ratios between decades (and between alternatives) is due to changes in harvest tree diameters. As tree harvest diameters decrease, the board foot per cubic foot conversion ratio will decrease accordingly. However, the cubic foot output will remain the same or increase over time.

In response to public input concerning conversion ratio factors, the Forest has developed a way to calculate the board foot volume based on the actual harvest value and harvest tree size found in the FORPLAN model. Existing conversion ratios are based on the ratios found in the 1980 Forest inventory by different diameter classes. With this method in place, actual board foot values can be tracked over all decades when needed. The board foot volume projections for all alternatives (first decade only), are based on this procedure. Board foot projections will not be made after the first decade.

## CULTURAL RESOURCES

### Comment Summary

Protection of cultural resource sites was a concern for several respondents. Some respondents felt that destruction of sites was an automatic result of timber management and urged that old-growth stands should be retained to protect these sites. The survey, management, and mitigation of effects on cultural resource sites was a concern. The US Department of Interior in particular was concerned with identification and management on a project by project basis. They urged that the Forest Plan provide assurance that evaluation of the Forest's cultural resources would be conducted under a systematic survey by research goals extending beyond a project level and including testing to better understand the significance of the sites. They also questioned why cultural resource investment and management were limited to Management Areas 1, 3, 4A, and 14 and not included in rangeland. Historic sites were of interest to several respondents who urged that we interpret or at least mark these sites.

### Forest Service Response

Cultural resource surveys are conducted prior to implementation of any potentially disturbing project. The sites identified during these surveys are evaluated by a professional archaeologist to determine whether they meet the criteria which qualify them for listing in the National Register of Historic Places. Qualifying properties are said to be "significant" and are afforded appropriate management. Properties not meeting the National Register criteria are not significant and are removed from further cultural resource management consideration.

The Malheur National Forest operates its survey program on the systematic basis of a forest-wide inventory strategy. This strategy considers the various types of sites known or suspected in the area, the probable location of these prehistoric and historic sites, and those factors which control our ability to locate them. The strategy is designed to be applicable to the entire Malheur National Forest. It is only implemented on a project specific basis. Research issues for survey, evaluation, and data recovery are designed on a regional basis under the Inventory Strategy, the Lithic Scatter Programmatic Memorandum of Agreement, and other similar documents. Questions relevant to regional research goals are taken from these regional documents and focused for the sites on the Malheur National Forest.

The largest potential contributor to adverse impact on cultural resources is the timber management program. As a result of the timber program, a survey is conducted on 80,000 to 100,000 acres per year. This survey is funded with timber support funds. Sites discovered are either protected by avoidance, or their significant values are recovered through data collection or recordation to appropriate standards. Range projects that have the potential to impact cultural resources are inventoried just as timber projects.

All lands on the Forest will eventually be inventoried as time and resources become available. The Forest has a large inventory of documented sites that are currently being protected by avoidance. The activity schedules in the Forest Plan (Appendix A) have been revised and expanded to include a large amount of site management work. We recognize the need to be managing these sites and plan to aggressively move toward that end.

One valuable and effective aspect of site management is resource interpretation. Interpretive projects are planned on the historic Sumpter Valley Railroad, Wickiup historic campground, Logan Valley, and the Middle Fork John Day area.

## DIVERSITY

### Comment Summary

There was considerable concern that the approach used in discussing diversity is not adequate per CFR 219.26. There appears to be confusion or dissatisfaction with the lack of integration of diversity concepts, typified by a request by the Nature Conservancy to have a section called "natural diversity" in the environmental effects section of the Final EIS.

The Nature Conservancy and other respondents stated that intensive timber management and the shift, for a period of time, from ponderosa pine predominance to associated species will not provide for biological diversity and is contrary to the National Forest Management Act charge to "provide for steps to preserve the diversity of tree species similar to that existing.." It was suggested that judicious use of uneven-aged timber management contributes to vertical diversity.

Several respondents, including Washington Native Plant Society, National Wildlife Federation, the State of Oregon, and others indicated that much more stringent standards are needed for native plant species, especially in riparian areas, and for protection of diversity as an objective focusing not only on forested types but also special habitats, juniper, grasslands, and hardwoods, especially aspen.

### Forest Service Response

In responding to the request to include a specific narrative on diversity within the Final EIS, the Forest's approach is to include a section on diversity of plant and animal communities (see Final EIS, Chapter III, Section B). Due to public desires, this section is based on discussions of diversity at the landscape ecology level. Some notable changes from the Draft to Final EIS are listed below. In order to maintain the natural vegetative diversity that exists across the Forest, thus providing a variety of landscape or habitat conditions across the Forest, the preferred alternative (Alternative I) will be:

- 1) featuring/emphasizing ponderosa pine on many of the Forest's mixed conifer acres and on all of our ponderosa pine acres
- 2) increasing uneven-aged management to approximately 225,000 acres of the managed forest lands. This technique will feature multiaged canopies within fairly small parcels (approximately 2 acres) of forestland
- 3) providing snags and snag replacement trees at or above 40 percent potential population levels over the entire Forest (all land capable of producing snags)
- 4) providing old-growth replacement timber management strategies that will give an intermediate age class structure between intensively-managed forest and unmanaged (dedicated) old-growth habitat
- 5) closing roads not needed for Forest access, whereby providing for maintenance of higher snag levels, simply because capture of tree mortality through firewood harvest will be more difficult
- 6) maintaining higher levels of cover across the Forest for big-game habitat emphasis, thus providing the potential for greater vegetative diversity.

In general, timber harvest patterns across the Forest will result in changes to the existing diversity of vegetation, with both increases and decreases to natural diversity occurring. Using ecological terms, there will be a general decrease in within-stand diversity, with an associated increase in between-stand diversity. This will be a result of changing the structural composition of the Forest over time. Harvests of large, old trees, thinning and tree planting present a challenge in designing future Forest conditions related to vegetative diversity. As timber harvests, thinning and plantings will be managed in

units ranging from less than two acres to more than 100 acres in size, the opportunity to increase the between-stand diversity becomes more pronounced. Strategies for maintaining old growth, roadless areas, research natural areas, old-growth replacement stands, foreground visual zones, snags, snag replacements, and intensively-managed stands using uneven-aged and even-aged prescriptions in a intermingled pattern across the Forest will help to maintain a significant level of structural diversity.

Animal diversity, both in terms of edge and species richness, will change as a result of management activities and natural processes. As habitat conditions are manipulated, the opportunity exists to both benefit and adversely impact certain ecosystems or portions of ecosystems. Manipulations of common plant communities, each with distinct animal communities, will have the potential to affect changes in animal habitat conditions. Increasing regeneration harvests in mature stands (clearcutting and shelterwood cuts) with an abundance of cover will increase the contrast edge. Animal species and communities that respond favorably to edge will generally increase. In areas with little cover, these harvest types will work to reduce optimal habitat conditions.

Increasing use of an uneven-aged management strategy that retains vertical diversity in managed timber stands would help to maintain within-stand diversity over the Forest and thus support species that thrive in these types of habitats. However, it is the interaction of management activities on the Forest that is the key to understanding impacts and effects on diversity of habitat conditions. Use of a geographically-specific modeling/analysis process will assist in monitoring habitat diversity and contrast on all areas across the Forest.

Use of a Habitat Effectiveness Index model will incorporate diversity variables that are related to vegetative cover spacing and quality, and will be applied on a subwatershed basis. Riparian area management standards have been revised and are more restrictive in forage utilization, thereby affording greater protection to native vegetative species. Special habitat conditions, such as unusual vegetative types, research natural areas and protection of sensitive species will help maintain segments of the natural diversity found across the Forest.

## FISHERIES

### Comment Summary

The Environmental Protection Agency, Fish and Wildlife Service, Trout Unlimited, Confederated Tribes of the Umatilla, Columbia River Inter-Tribal Fish Commission, Oregon Natural Resources Council, Oregon Environmental Council, Wilderness Society, Izaak Walton League, and others all commented that standards, monitoring plans, and information provided about the fisheries resource were inadequate, vague, unmeasurable and insufficient to protect the resource. Reliance on best management practices (BMPs) was seen to be insufficient, and data is lacking to support the effectiveness of these measures on the Forest. The Bonneville Power Administration's goal to double anadromous fish production was suggested as a measure of demand. The reasons why the maximum anadromous fish benchmark took 50 years to reach that goal were questioned. The objective of 90 percent fish habitat capability was recommended as a minimum objective for fishery management. The State of Oregon and numerous response forms from individuals established the importance of recreational fishing and anadromous and resident fish production. The Northwest Forestry Association noted that environmental groups were likely to question the Forest's conclusions and requested that the Forest fully document the scientific uncertainty of predicting effects on water quality and fisheries.

Comments included requests for identification of areas where fish habitat has declined due to riparian degradation, objectives by drainage with monitoring recommendations and priorities, identification of streams to be protected from hydroelectric development as coordinated with the Northwest Power Planning Council, discussion of the impacts of management activities on fish habitat improvement projects of other agencies and landowners, requests for a special management area for anadromous fish, equal emphasis

on enhancement and protection of resident fish populations; and clarification of the relationship between the Forest and the Bonneville Power Administration projects relative to the projected increases in anadromous fish. It was requested that the Final EIS clearly describe the process and assumptions used to predict these increases. The Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Oregon Natural Resources Council, and others requested special management consideration of the redband trout and the Malheur mottled sculpin. Finally, it was noted that statements about the budget required to improve habitat were inappropriate; that the Forest had the discretion not to conduct activities that would degrade the habitat if it couldn't afford the protection or mitigation needed. Oregon Natural Resources Council stated that maintenance and improvement of fisheries habitat should come primarily through management not mitigation.

Forest Service Response      In response to public concerns, resident trout have been added as indicator species (Final EIS, Chapter III, Section D). Resident fish have also been added to the Monitoring Plan (Forest Plan, Chapter V).

The discussion of sensitive species has been substantially expanded (FEIS, Chapter III, Section D). In reviewing public comment and current data, a need for more facts was evident. Consequently, sensitive species have been added to the list of information needs (Forest Plan, Chapter II, Section E). Sensitive species have also been added to the Monitoring Plan (Forest Plan, Chapter V).

Standards for protecting water quality and fish habitat have been extensively revised to make them more complete and definitive (Forest Plan, Chapter IV, Sections E and F). This included revising the timber and road standards to provide additional protection to riparian areas. Anadromous and non-anadromous streams are identified separately, with specific management standards and monitoring plans developed for each. New timber harvest prescriptions for riparian areas were developed for Alternative I. Monitoring will now be done on a subwatershed basis, rather than on Forest-wide averages (Forest Plan, Chapter V). This will provide for more site-specific monitoring of fish habitat capability trends.

Smolt habitat capability was recalculated using the coefficients from *U.S. v. Oregon* to be consistent with other forests in the region. These estimates are based on rearing area, rather than on spawning, as was used for the Draft Environmental Impact Statement. As a result, the outputs displayed here for commercial harvest and Wildlife and Fish User Days (WFUDs), which are the values with assigned economic values from RPA, are somewhat less than what was displayed in the Draft EIS. However, these numbers still reflect the economic value of the anadromous fish habitat on the Forest. They do not reflect the fact that spawning occurs at higher densities on the Forest than downstream from the Forest boundary. Another factor that is not accounted for in these calculations is the effect of expected improvement in water quality, especially temperature, on the habitat quality of downstream areas.

The Forest provided input to the Bonneville Power Administration (BPA) planning process concerning fish habitat and hydroelectric potential, along with other resource information, such as, wildlife, recreation, natural features, historic and archeological resources. Bonneville Power Administration has now completed their analysis and issued their list of streams protected from hydroelectric development. All streams on the Malheur National Forest are included in this list of protected streams.

## GEOGRAPHIC SPECIFICITY

### Comment Summary

In the State of Oregon's response to the Malheur National Forest's Draft EIS and Proposed Land and Resource Management Plan, the Governor of Oregon stated that "many State agencies were hamstrung in making effective comments to you because of the lack of geographic detail in your analysis and discussion." Concern was expressed that resource effects, such as, sediment production, water flow, and habitat structure over time, could not be adequately assessed without more geographically specific information.

To alleviate this situation, the Governor requested that we "divide your forest into watersheds, or some other logical geographic breakdown, and embed that structure in your forest planning analysis and in the presentation of resource effects in your Final Environmental Statement." Concern about the lack of geographic specificity in reporting of resource outputs and effects, particularly in the areas of watershed management and cumulative effects, was also expressed by the Environmental Protection Agency, Oregon Trout, Oregon Natural Resources Council, and the Columbia River Inter-Tribal Fish Council.

### Forest Service Response

In order to be responsive to specific agency concerns, we have incorporated seven geographic identifiers (major watersheds on the Malheur National Forest), each with two range identifiers (summer vs. winter), into the FORPLAN model structure.

The watersheds that are now identified contain Forest acres within (1) Fox/Cottonwood Creeks, (2) the Middle Fork of the John Day River, (3) Upper John Day River, (4) South Fork of the John Day River, (5) Silvies River, (6) Malheur River, and (7) North Fork of the Malheur River. To establish this geographic specificity, a minimum of elements within the existing model were necessarily traded off, in order to accommodate this approach (lack of room with the FORPLAN analysis model). To insure continuity with the "whole Forest" model (Draft EIS analytical basis), sensitivity testing was performed on the new geographic model. The results have indicated that the Forest-wide model outputs and effects are virtually identical to the geographic (watershed) model outputs and effects. The greater precision, in detail with the geographic model formulation, is the main benefit realized with this new approach.

Giving greater geographic specificity in response to State of Oregon concerns, as well as other public concerns, has provided outputs that will be more easily identified and tracked on the Forest. This has allowed greater detail for cumulative effects analysis and specific watershed management. This will be tied into the monitoring program for Forest activities such as timber harvests, elk habitat levels (cover production and forage outputs), thus bringing more clarity into the analysis process. Subwatershed analysis is also more easily incorporated into this model formulation. Subwatersheds are identified in the Forest Plan, Appendix N. More information on this issue can be found in the Final Environmental Impact Statement (Appendix B, Section III).

## LIVESTOCK GRAZING

### Comment Summary

The majority of comments about livestock grazing addressed the level of animal unit months that the Forest should make available. These comments were roughly evenly divided between those wanting grazing to be decreased or eliminated and those wanting it to be maintained or increased. The Oregon Natural Resources Council and the Environmental Protection Agency (EPA) requested that suitability for grazing be determined as required by law, and that where it was concluded that impacts to riparian areas would be unavoidable, the area be determined unsuitable and livestock be excluded. The EPA, Oregon Department of Fish and Wildlife, Oregon Environmental Council and others requested that an allotment map be provided as well as tabular information including allotment names, animal unit months permitted, season of use, trend and condition, graz-

ing system, current utilization rate, status of the allotment management plan, existing and planned improvement projects, and known or expected recovery rates.

Many respondents, including the Harney County Court, Associated Oregon Loggers, Northwest Forestry Association, and others, were concerned about the effects of planned riparian management on individual grazing permittees and community stability. Oregon Natural Resources Council and others requested more information about implementation of the riparian management strategy. Associated Oregon Loggers commented that the reasons for changes in forage production were not well described between the alternatives.

#### Forest Service Response

The annual level of livestock use is affected by other resource management activities. Changes in timber management, fisheries habitat management and utilization levels of vegetation affects the capability for livestock grazing on the Forest. These effects are further discussed in the Final EIS, Chapter III.

The management changes that affect the annual level of livestock use on the Forest have been addressed in Alternative I (the Preferred Alternative), developed in response to public concerns about livestock use. In this alternative, livestock use capability in riparian areas will be reduced by approximately 12 percent and will be reduced by 5 percent Forest-wide from current use levels.

Suitable rangelands are areas which produce, or have inherent capability to produce, 50 pounds or more of palatable forage per acre; can be grazed on a sustained-yield basis when allowable use levels are applied without damage to vegetation and soil resources, and are or can be made accessible for use. Suitability is independent of past range use effects. Range with a very low forage rating is suitable if vegetation can be improved through management. Some areas may be closed temporarily to grazing or other steps may be taken to improve the otherwise suitable area.

A grazing allotment map is available upon request (Supervisor's Office, John Day, OR) and a table displaying the activity schedule for grazing allotments can be found in the Forest Plan (Appendix A, Table A-10).

Upon implementation of the Forest Plan, the Animal Unit Month (AUM) capability level for riparian areas will drop 12 percent due to changes in various resource management activities. This will cause slight adverse impact upon Forest permittees. However, we do not anticipate that the 5 percent Forest-wide reduction in livestock use capability from recent historical levels will produce a measurable effect on the community. In reviewing public comments and recent analyses, the changes are necessary to accomplish coordinated uses and multiple resource management to which the USDA Forest Service is charged.

The Forest-wide and Management Area Standards (Forest Plan, Chapter IV, Sections E and F) have been extensively revised and made more specific to provide precise management direction for resource managers. The Forest monitoring plan (Forest Plan, Chapter V) has also been reworked and monitoring worksheets added to provide adequate evaluation and implementation direction.

#### INSECTS AND DISEASE

#### Comment Summary

The past effects of western spruce budworm and the potential for future infestations were the primary concerns of those who commented on insects and disease. A major concern was that the Plan's volume projections do not account for the mortality and growth loss caused by the most recent epidemic. Respondents noted that the large increase in mixed conifer stands in future decades would increase the potential for another epidemic infestation. Others, such as the Associated Oregon Loggers, felt that the benefits to forest health as a result of managing for ponderosa pine were not adequately considered.

Some respondents commented that the budworm was killing the fir understory as have fires of past years and that the Forest Plan's reliance on managing these understories was questionable. They were not reassured by relying on future intensive management and full stocking level control as a way to manage severe future outbreaks and suggested that plans to prevent or reduce damage from pests, including wilderness outbreaks, be discussed. Some respondents recommended that insect outbreaks in the wilderness be allowed to run their natural course. Other respondents, including the Environmental Protection Agency, requested that the criteria for epidemics which "severely" threaten adjacent land be spelled out. The Washington Native Plant Society further recommended that non-chemical means of control be specified for research natural areas and wildernesses.

Forest Service Response      The major comments on insects and disease activities and their effects are all interrelated and a change in the forest management approach in one area will most likely have an effect on the others.

In response to comments about the recent western spruce budworm epidemic, the Forest has reviewed the manageability of its existing understories. This review has indicated that there has been a significant change in the number of acres that are found to be managed both on a Forest-wide basis, of which approximately 60 percent is manageable, and on a major watershed basis, which may vary from roughly 90 percent to 20 percent depending on the species mix and watershed location. The analysis also has revealed that understories were most likely not manageable if they had a high percentage of white fir and/or Douglas-fir, and were found in watersheds that occupied the northern portion of the Forest. This is where the recent epidemic has occurred for the longest time period and has had the greatest effect on host species, (i.e., white fir and Douglas-fir). The Forest has now made changes in the analytical approaches in order to reflect these findings. A special study is now being conducted to determine the effects of the epidemic on the growth of trees and stands. This study will not be completed for one to two more years and its results will be incorporated as they become available.

The Preferred Alternative will emphasize more ponderosa pine using both even-aged and uneven-aged management systems. This change, over time, should cause a lessening of both insect and disease agents across the forest due to the lower susceptibility of this tree species to these agents.

The overall effect of these two major changes, combined with intense timber management practices, will be to produce healthier stands of trees over time. Even with these changes to lessen the risk and loss to these pest agents, there will still be periodic outbreaks of spruce budworm and tussock moths (Final EIS, Chapter II). However, as these changes in management take effect, outbreaks should become less severe and further apart in time.

Actual on-the-ground controls and actions will vary among management areas, and will be based on the objectives for the management area and sound integrated pest management principles. Control activities that could be utilized include no action, control through natural predators, or the use of chemical or biological control agents.

Insect and disease outbreaks in general forest areas will be open to all control activities with the addition of the option to replace existing trees with species that are more disease resistant. In areas such as wilderness and research natural areas, control through natural predators (i.e., birds, mammals, or microbial agents) is favored. These options are also preferable in semiprimitive roaded and unroaded areas; however, the use of chemical controls could be made available if management objectives can be met.

An environmental analysis will precede the initiation of control activities. This analysis will be used to determine the control activity used and the course of action, and to ensure compatibility with the management area standards and guidelines. Future insect

outbreaks will be managed through the interdisciplinary process using Forest standards, Region 6 Vegetative Management EIS and land management goals for each individual management area.

## LANDS AND MINERALS

### Comment Summary

The Bonneville Power Administration recommended that the Forest Plan designate existing and proposed utility and transportation corridors and also address the impacts of the alternatives, if there are impacts, on rights-of-way and corridors. They recommended that the documents reference the 1986 Western Regional Corridor Study. They further recommended that management area descriptions state whether utility or transportation corridors should be avoided or excluded from the area. The State of Oregon Division of Lands, identified specific parcels that may be affected by changes in Forest management and are available for sale or exchange.

The Bonneville Power Administration, the Fish and Wildlife Service, and the State of Oregon Department of Environmental Quality commented that the Plan should better address renewable energy resources such as wind, hydroelectric, geothermal, and biomass. They requested that the type and potential of the resource, impacts of the alternatives and conflicts with the potential development of those resources is identified. It was suggested that the Forest incorporate the 1982 "Geothermal Resources of Oregon" map which shows the entire area as favorable for discovery of this resource.

Trout Unlimited and other individual respondents suggested more directive standards for mineral activity such as not allowing mining in or near streams during spawning months or prohibiting instream degradation of any kind. The Environmental Protection Agency suggested that monitoring of reclaimed area be included as a standard to ensure accomplishment of objectives. The State of Oregon Division of Lands identified specific standards to address compliance with State laws.

Several comments addressed access for mineral development. Some commented that access should not be restricted. The Fish and Wildlife Service recommended that standards stipulate that access or new roads would be restricted to existing ways in the scenic area and that valid existing mineral rights would have to be tolerated in the Strawberry Mountain and Monument Rock Wildernesses. That agency, as well as the State Department of Geology and Minerals Industries, also recommended an expanded and revised discussion of the Forest's mineral potential to include a discussion of present activity, the percentages of area in various categories of restriction, discussion of projected demand and historical production and value, a list of current mineral withdrawals, and information about industrial and construction minerals. They also recommended that the Forest initiate mineral investigations as part of the activity schedules.

### Forest Service Response

The impacts by alternative on existing and proposed utility and transportation corridors are not addressed. Standards providing management direction for these corridors were made more specific in Chapter IV, Management Direction, of the Forest Plan. These standards indicate that existing corridors will be used to the extent feasible, and an inter-agency environmental analysis will be conducted when this is not possible. In addition, standards for specific management areas indicate whether corridors would be allowed, avoided or excluded.

A land ownership adjustment schedule was added to Appendix M of the Forest Plan. This schedule establishes direction for ownership adjustments that will best accommodate the objectives of the Forest.

The potential of a variety of energy resources have been addressed by the Area Mining Engineer, who used the *Bibliography of the Geology and Mineral Resources of Oregon*, State of Oregon Department of Geology and Mineral Industries, as a base document for

research Little information is available on the potential of wind energy on the Malheur National Forest Therefore, it is not discussed in this planning effort The potential for hydroelectric energy on the Forest is low (Final EIS, Chapter III). The effects of each alternative on the potential yield and value of minerals and energy resources are discussed in Chapter IV and Appendix F of the Final EIS

Forest standards (Forest Plan, Chapter IV, Sections E and F) have been made more specific regarding mining operations in streams. Specifically, miners will be notified of applicable laws with which they must comply, and operating plans will emphasize protection of and/or mitigation of impacts In addition, reclamation of operating sites has been added as a monitoring and evaluation item to ensure compliance with established standards (Forest Plan, Chapter V) Under the mining laws, claimants are entitled access to their mining claims Forest Standards have been revised to emphasize this point

The Final EIS has been revised to better describe mineral potential and values, current activity and restricted areas (Chapters II, III, IV, and Appendix F) Additions to the Forest Plan (Chapter IV) now respond to expected future trends with respect to energy and non-energy mineral production. Mineral investigations have not been added to the activity schedules It is expected that most investigations will be performed by industry users in the course of mineral exploration and development

#### MANAGEMENT INDICATOR SPECIES

##### Comment Summary

Concern was expressed about the lack of indicator species for resident fish habitat and riparian habitat There was also an expressed desire for additional base line information and evaluation of effects on indicator species populations by alternative There was concern about the lack of discussion about the estimated effects on indicator species due to changes in vegetation type, age class, etc The Forest was urged to improve the limited data made available and discuss any scientific uncertainty Various additions to the indicator species listed were recommended The redband and bull trout and Malheur mottled sculpin were consistently mentioned as resident fish indicator species Upland sandpiper and sandhill crane were recommended for meadow indicator species Downy woodpecker and ruffed grouse were the primary species mentioned for riparian habitat, although, there were other candidates as well Wolverine was also recommended more than once as a large predatory mammal that is sensitive to changes in its habitat

##### Forest Service Response

Habitat modification may result in population changes of species that are associated with that habitat, and the response of certain species, known as management indicator species may indicate the effects of the habitat change on other species with similar habitat needs There is some uncertainty about the general application of this concept, as it is not well tested In comparison to describing and managing the hundreds of species individually, an approach of using one species to represent several others is an attractive one and has been adopted as a forest planning and monitoring strategy

Following the release of the Proposed Forest Plan and Draft EIS, there was a noted increase in awareness of public concerns about management indicator species The Forest re-examined this issue Concurrently, there was a Regional effort to bring additional consistency to management indicator species The Forest elected not to evaluate effects of alternatives or to discuss vegetative type changes on management indicator species. Instead, the focus of this effort was on expanding the list of management indicator species to cover most of the habitat types where management activities could have an adverse effect on wildlife species.

Consideration was given to adding management indicator species for resident trout and riparian habitat Resident fish have been added to the list of management indicator species. Indicators for non-anadromous streams now include, bull trout, cutthroat trout, and rainbow/redband trout. Rainbow and redband are considered together because both

occur on the Forest and until the taxonomic uncertainty about redband trout is resolved, it is safer to use both. The Malheur mottled sculpin was not included as management indicator species. Its distribution and habitat assessment have been identified as needing additional data (Forest Plan, Chapter II) The Forest does not have reliable indicators for riparian habitat; however, separate management areas (Management Areas 3A and 3B) have been established for anadromous and non-anadromous streams, ensuring the maintenance and improvement of this important habitat

Not all plant communities were represented by management indicator species, only the communities where management activities were most likely to cause adverse impacts. Two major plant communities not represented are meadows and juniper/sagebrush habitats. Instead of management indicator species for these communities, we addressed the habitat needs in Forest Management Standards for several featured species using these specialized habitats, the sandhill crane, upland sandpiper, sage grouse, and antelope.

Rather than representing all plant communities under the management indicator species system, only the most critical habitats were included, old growth and dead and defective tree habitats. Groups or species guilds were included to represent these habitats (e.g., three old-growth species and 11 cavity excavators for dead and defective habitat). Also, the Forest added Cooper's and sharp-shinned hawks as management indicator species to monitor habitat changes in early to mid-successional forest ecosystems, because of the uncertainty of impacts of large precommercial thinning operations on species utilizing these habitats.

## MANAGEMENT REQUIREMENTS

### Comment Summary

Those who commented on this topic generally expressed support for the concept of management requirements which would represent the minimum needed to meet biological needs of certain wildlife species. Some respondents thought that we should have a management requirement for three-toed woodpeckers. Others felt that our minimum requirements were not stringent enough, given the level of uncertainty. Still others felt that we should have had a range of minimums displayed for comment. There was a comment that we could do more overlapping of land allocations to meet the requirements, while another comment stated that we had no justification for overlapping areas for pine marten and pileated woodpecker.

### Forest Service Response

Management requirements are the minimum requirements which must be met to accomplish the goals and objectives of the National Forest System as outlined in 36 CFR 219 of the National Forest Management Act regulations. Fish and wildlife habitat will be managed to maintain viable populations of existing native and desired nonnative vertebrate species. Habitat for these species will be provided to support at least a viable population of reproductive individuals, and will be well distributed so that those individuals can interact.

Habitat for old-growth dependent species was dedicated using minimum territory sizes for pileated woodpecker and pine marten (which are the management indicator species for old-growth habitat), and a distribution requirement that they be located within 10,000 to 12,000 acre blocks for pileated woodpecker and 4,000 to 5,000 acre blocks for the pine marten, and that old-growth stands be interconnected where possible. The most suitable old growth stand or unit was selected within each of these areas, and the same potential old growth units received consideration under each alternative. Both pileated woodpecker and pine marten use mixed conifer old-growth habitat and hence there was an overlap in old growth allocations for these two indicator species. There was not a complete overlap because pine marten occur only in mixed conifer and higher elevation forests, while pileated woodpecker are found also in ponderosa pine communities.

Management requirements were not established for three-toed woodpeckers because the

timber management strategy for lodgepole pine habitat will provide a significant excess of old growth Forest-wide Management designation of these areas is therefore not needed at present. Furthermore, large acreages of old-growth lodgepole pine have been killed by mountain pine beetles, which precludes designation in many areas at present. It will be an estimated 40 years before about 26,000 acres of lodgepole pine forest becomes suitable habitat for northern three-toed woodpecker, and future Forest Plan revisions will include consideration of that species. The Forest Plan (Chapter IV, Section E) contains a management standard to identify any existing and potential old-growth lodgepole pine stands as per Regional Management Requirements for three-toed woodpeckers.

The Forest Plan (Chapter IV, Sections E and F) directs that old growth allocations be sufficient to maintain populations of dependent species at 30 percent above minimum viable levels. This accounts for stands that have less than 100 percent occupancy rates, and for risk associated with managing at minimum viable population levels. Management direction for old growth areas (Management Area 13) is provided in Chapter IV of the Forest Plan and a detailed discussion of management requirements can be found in Appendix G of the Final EIS.

## MONITORING

### Comment Summary

Comments on monitoring requirements were generally limited to a few large organizations who completed an in-depth review of the Proposed Forest Plan. These organizations included the State of Oregon, Environmental Protection Agency, Columbia River Inter-Tribal Fish Commission, and the Confederated Tribes of the Umatilla.

Respondents generally felt that monitoring requirements were inadequate, being too general and not sufficiently comprehensive. Specific concerns included:

- a. Monitoring for some key resource areas is nonexistent or inadequate,
- b. Monitoring questions are too general to ensure that the Forest Plan is being properly implemented. Respondents suggested that monitoring items be specific and measurable, with terminology defined. The State of Oregon Department of Forestry recommended specific monitoring items and processes.
- c. Responsibility for completion of particular monitoring activities is not specified,
- d. Frequency of monitoring, sampling rates, and sampling procedures and methodology are not described,
- e. The size of area to be used as the standard for monitoring is too large to ensure that the resource of concern is being adequately addressed,
- f. Threshold levels and variability standards are not established. Too much emphasis is placed on the evaluation of monitoring results to determine the course of action to be taken if projected outputs and effects are not met,
- g. Concern about links between monitoring and the budget exists. Respondents expressed concern that if funding is not adequate to implement the Plan, the monitoring budget will be reduced. The Governor of Oregon recommended that "plans be structured so that output levels will be proportionately reduced if monitoring resources are not forthcoming as promised." Respondents also requested that the links between particular resource outputs and effects and budgets be specified, with specific information provided concerning how outputs and effects would be affected if actual budget levels were less than projected levels.

**Forest Service Response** In response to public concern about the monitoring plan, changes have been made to provide land managers with a definitive monitoring process. A discussion of the monitoring plan and individual resource monitoring items can be found in the Forest Plan (Chapter V).

The monitoring plan has been revised. The language used to display monitoring questions in developing the monitoring plans is more specific. This ensures that the monitoring items are more measurable. We have included both threshold levels and variability standards in each of the monitoring items

In an attempt to incorporate established procedures for monitoring frequency, sampling rates, procedures and methodology, we have included the specific approach to be used. Often this is based on well-established research/field practices, documented in professional and technical literature.

Establishing a reasonably sized monitoring area is certainly a critical part of the process. We know that too large an area will "wash out" specific indicators of change, while a sample on too small an area will result in excess costs or inconclusive results. With this in mind, we have geared our investigations towards sampling designs that capture resource trends, within established error tolerance, at low costs of implementation.

The link between monitoring and the budget has been tightened to include specified actions in project implementation if monitoring budgets change in any significant way. For each monitoring item, if funds are inadequate to effectively monitor the Forest Plan goals, objectives, standards, and resulting environmental effects, the specific situation will be analyzed. A resulting course of action will be taken, which will be reflected in regulation of proposed output levels, or in revised implementation schedules.

#### **MUNICIPAL WATERSHEDS**

**Comment Summary** The town of Canyon City recommended that the Byram Gulch and Long Creek watersheds be considered individually and Byram Gulch be removed from scheduled timber harvests, thereby prohibiting logging in that watershed.

Prairie Wood Products said that the Forest Plan did not discuss impacts on other watersheds (i.e. not municipal) which provide water supplies for some municipalities (i.e. John Day). They recommended that we discuss the impacts on those watersheds.

In their response to the Forest Plan, the city council of Prairie City requested that the Dixie Creek drainage be considered as a municipal watershed. After their response was received, the Long Creek District Ranger and the Forest hydrologist met with the mayor of Prairie City to clarify the city's request. Under current Forest Service manual direction, Dixie Creek does not meet certain qualifications for municipal watersheds on Forest Service lands.

**Forest Service Response** A municipal watershed provides water for human consumption that is utilized by a community or any other public water system regularly serving at least 25 individuals at least 60 days out of the year or provides at least 15 service connections. Where Forest Service management could have a significant effect upon the quality of water is at the intake point. (This definition can include such facilities as campgrounds, organization camps, resorts, residential areas, etc.)

The intake point for the supply does not have to be within the Forest boundary. However, if the intake is some distance from the Forest and there are potential pollution sources that outweigh any problems from National Forest land, then such a situation would not justify classification as a municipal watershed. The definition does not include communities served by a well or confined ground water unaffected by Forest activities.

All municipal supply watersheds have been identified and management direction for each is prescribed in specific management areas (Forest Plan, Chapter IV, Section F) A separate management area has been established for each municipal watershed. Byram Gulch (Management Area 17) is a primary water source for Canyon City, OR A secondary water source for the town of Long Creek, OR, is an unnamed tributary of Long Creek (Management Area 18)

In response to municipal water supply concerns, the Byram Gulch watershed (Management Area 17) has no scheduled timber harvest, cattle grazing is prohibited, and the area is withdrawn from mineral entry Timber harvest is permitted within the Long Creek watershed (Management Area 18), however, timber harvest activity and road building will be designed to minimize excavation and protect streams and drainage channels

All other watersheds on the Forest are an important source of water for on-site values and downstream uses, however, watersheds other than the two recognized as municipal watersheds are managed by the Forest through applicable management area and Forest-wide standards Water quality and water yield changes are potentially affected by timber management. Although timber harvest can increase annual water yield, these increases are typically an insignificant part of total runoff and are generally unmeasurable Water quality in all alternatives will protect beneficial uses for all decades of the Plan, through implementation of Forest standards and best management practices (BMPs) More information regarding water quality can be found in the Final EIS (Chapter IV, Section C)

The Dixie Creek drainage does not qualify as a municipal watershed and will therefore be managed under the applicable management area Dixie Creek drainage is to be managed as a wildlife emphasis area with no scheduled timber harvest

## OLD GROWTH MANAGEMENT

### Comment Summary

Five topics were the focus of comments the definition and value of old growth; the amount of old growth retained, the effects of the Proposed Plan, the implementation of the Proposed Plan, and the lack of a map denoting old growth

Concern was expressed that not enough old growth would be retained in perpetuity on the Forest This concern was expressed by both local and nonlocal residents, Columbia River Inter-Tribal Fish Commission, The Wilderness Society, Washington Native Plant Society, Oregon Natural Resources Council, and in the Citizen's Multiple Use Alternative. These respondents felt that most, if not all, existing old growth should be retained in perpetuity The Citizen's Multiple Use Alternative calls for retention of at least half the existing old growth Columbia River Inter-Tribal Fish Commission called for retaining 10 percent of each timber type in old growth, Washington Native Plant Society recommended from 5 to 15 percent of each timber type. These groups also expressed concern that the amount of old growth retained throughout the general forest would be insufficient and dispersal distances too great to maintain viable systems and species

Concern was also expressed that too much old growth was being retained, and that only the minimum management requirement of old growth should be provided This concern was expressed by some local residents, local and other timber industry representatives, including Northwest Forestry Association, the Oregon State Department of Forestry, and in the Preferred-Plus Alternative. Northwest Forestry Association and others commented that the decision to retain 30 percent more acreage than needed for viable populations of wildlife species was not needed and at least requested more scientific rationale and discussion in the documents considering the effects on the timber allowable sale quantity (ASQ).

There were several comments that old-growth stands could not be maintained in perpetuity and that some replacement stands should be identified, or at a minimum, a

replacement stand procedure should be developed. There were also concerns voiced by the Oregon Department of Fish and Wildlife, the Oregon State Department of Forestry, and others about the quality of timber stands being identified as old growth, the definition of old growth itself, and the lack of old-growth maps in the Plan documents. The National Wildlife Federation and the Washington Native Plant Society recommended that the Plan distinguish between mature timber stands and old-growth timber stands and also between naturally evolved old growth and "managed" old growth. The Columbia River Inter-Tribal Fish Commission requested that a list of the criteria for determining old growth be displayed in the Plan. These groups, as well as the Wilderness Society and the Sierra Club, commented that the Plan discussion of the numerous values and importance of old growth were not adequately discussed in the draft planning documents. They noted that old growth is the resource that is least available from other landowners and most difficult to replace, as rationale for increasing the amount of old growth maintained. The Washington Native Plant Society also requested that we address old-growth juniper stands and old-growth native grass communities.

The analysis of the effects of the alternatives, especially the Proposed Plan, was criticized. The Washington Native Plant Society requested that the documents include a list of all species associated with old growth and a thorough evaluation of the effects on those species of reductions in existing old growth. They called for a moratorium on the harvest of old-growth ponderosa pine and a discussion of the anticipated amount of old growth retained by timber type, as did the National Wildlife Federation. The Environmental Protection Agency and the Columbia River Inter-Tribal Fish Commission requested more discussion of the effects on anadromous fish due to harvest of old growth adjacent to anadromous fish-bearing streams. The Environmental Protection Agency also requested more information be displayed about the elevation of the old-growth stands retained. The Columbia River Inter-Tribal Fish Commission disagreed with the assessment that a reduction to 20 percent of the existing old growth would be a "limited" effect and requested justification of that statement. The Fish and Wildlife Service commented that the Forest's assumption of 100 percent occupancy of old-growth units is unrealistic and requested analysis of effects using a more realistic assumption. The Northwest Forestry Association stated that the scientific uncertainty and literature reviewed were not satisfactorily disclosed in the Draft EIS.

In conjunction with the stated concerns about effects, several of these reviewers were dismayed that maps of existing and proposed old growth by timber type were not provided to assist them in assessing the extent of effects for themselves.

The Washington Native Plant Society supported the old-growth management area designation and made numerous recommendations for additional standards. The Columbia River Inter-Tribal Fish Commission commented on the number of exceptions which would allow harvest or management of old-growth stands and recommended that the Forest designate replacement stands to ensure that adequate amounts of old growth would be retained. Western Wood Products Association and others recommended that old-growth allocations be overlapped as much as possible with other compatible allocations such as Bald Eagle Winter Roost sites and riparian areas.

#### Forest Service Response

A wildlife and fish management goal is to manage habitats to ensure the existence of viable populations of all resident species. This goal is extracted from the National Forest Management Act of 1976 (NFMA) which defined a viable population as "one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence and is well distributed in the planning area." NFMA also directs national forests to "provide for diversity of plant and animal communities." Attention has focused on old-growth forest communities and dependent species because they are the most threatened of existing communities on the Forest. Without dedicating old growth (habitat), complete harvest of old-growth stands in general forest lands could occur within approximately 30 years.

Old-growth stands generally represent successional stages for an area. Forestry terms such as "mature" refer to tree growth and economic management considerations (Smith 1962), and mature is usually a mid-successional stage. Old-growth forests have often been described by foresters as "overmature."

Information on vertebrate species-habitat relationships is presented by Thomas et al. (1979). At least 25 bird and 10 mammal species use large trees, cavities, or cracks in the bark that are characteristic of mature and old-growth forests.

Pileated woodpecker and pine marten were selected as indicator species of old-growth forest. Suitable habitat for these two species were identified using spacing, size and habitat suitability criteria. Pine marten sites were located every 4,000 to 5,000 acres and pileated woodpecker sites every 12,000 to 13,000 acres. Whenever possible, sites were placed within wilderness, other no-harvest areas, and in areas of reduced harvest levels, wherever these met habitat quality and distribution requirements. Both pileated woodpecker and pine marten use mixed conifer old-growth habitat and hence there was an overlap in old-growth allocations for these two indicator species. There was not a complete overlap, however, because pine marten occur only in mixed conifer and higher elevation forests, while pileated woodpecker are found also in ponderosa pine communities.

Management requirements were not established for three-toed woodpeckers because the timber management strategy for lodgepole pine habitat will provide a significant excess of old growth Forest-wide. Furthermore, large acreages of old-growth lodgepole pine have been killed by mountain pine beetles, which precludes current designation in many areas. It will be an estimated 40 years before about 26,000 acres of lodgepole pine forest becomes suitable habitat for three-toed woodpecker, and future Forest Plan revisions will include consideration of that species. Also, the Forest Plan (Section E) incorporates a management standard to identify any existing and potential old-growth lodgepole pine stands to meet management requirements for three-toed woodpeckers.

The same potential old-growth units received consideration under each alternative. Acres of old growth (Final EIS, Chapter IV, Figure IV-5), and percentage of old growth retained above management requirement level (0 to 50 percent), varied by alternative because of differences among alternatives in management emphases.

Under the allocations of the Forest Plan (Alternative I) the Forest will maintain populations of dependent species at 30 percent above minimum viable levels. This is in order to account for stands that have less than 100 percent occupancy rates, for risk associated with managing at minimum viable population levels (such as epidemic insect and disease risks), and potential losses from fire and windstorms. There is certainly a lack of scientific data to support management requirements for old-growth species, and also a lack of current field data to verify how much of dedicated old growth is presently "suitable" versus "capable." The 30 percent figure is based on professional judgement. In addition to wildlife habitat, old growth can provide diversity to the forest ecosystem and visual or aesthetic values across the Forest.

The Management Unit Plans (currently being implemented) use the three-tier system with 240-year rotations for old-growth management (Final EIS, Appendix G). The 1987 Draft Forest Plan proposed to change management strategy to establishing dedicated sites where the required amount of naturally evolved old-growth forest is withdrawn from timber production. Location of the stand does not change over time. Based on public and agency comments, the Forest Plan retains the dedicated stands and adds replacement old-growth forest stands that are one-half the size of the dedicated old-growth units. Replacement stands are to be located within one-quarter mile of dedicated stands, and will be managed under an extended rotation. Management direction for old-growth areas (Management Area 13) is provided in Chapter IV of the Forest Plan. Old growth will be retained on approximately 121,040 acres (8 percent of the total Malheur

National Forest), including about 47,690 acres dedicated within old-growth management units that are distributed across the general forest, and 4,040 acres in bald eagle winter roost areas.

*Non-forest communities have been altered by livestock grazing for over one hundred years and present vertebrate species have adapted to a grazing disclimax. The Shaketable Research Natural Area (RNA proposal) includes lower elevation sagebrush-grass with some juniper, and the proposed Dixie Butte RNA includes subalpine sagebrush-grass. These areas contain old-growth plant conditions for the above mentioned plant communities.*

## RECREATION

### Comment Summary

The public commented that not enough priority was given to recreation in the Proposed Forest Plan. Fishing, camping, horseback riding, and other outdoor activities are important to the users of this Forest. They told us that they want the Forest to provide a high-quality recreational experience. Some respondents were critical of our assumptions about recreation values and future demands. They maintained that there had not been an adequate prediction of the potential increase in employment in the tourism and recreation business, that recreational activities were undervalued, as compared to other resources, and that an aging population would be demanding more developed sites than that what was predicted. Some commented that they agreed with the proposal to change 14 developed campgrounds to dispersed camping areas, while others maintained that the campgrounds needed improvement and the Forest could use at least two more developed recreation sites. Several respondents cited the strong leadership role that the Forest should play in strengthening the economic base of Grant and Harney counties.

### Off Road Vehicle Use/ Motorized Recreation.

There was concern about motorized recreation on the Forest. Many respondents did not like the amount of motorized recreation that the Forest proposed to provide. The concerns were especially strong regarding semiprimitive motorized recreation. Some respondents noted that the Proposed Forest Plan fell short in meeting demand for semiprimitive recreation by the fifth decade. Others said that off-road vehicle use should not be allowed in "roadless areas," that there was adequate opportunity for such use elsewhere on the Forest. Still others said that off-road vehicle use should be banned from the Forest. Commentors maintained the need to address the topic of off-road vehicle use more explicitly, the need to designate specific use-areas, and that there should be more clarity used to identify the impacts on soil, water, vegetation, cultural resources, and other impacts.

### Winter Recreation.

The public responded that too little emphasis was placed on winter recreation and that the Forest had a role to play in helping the counties expand the recreational season of use into winter. There were suggestions for designated winter sports areas, requests for snowmobiling corridors through big-game winter ranges, and generally a desire for more specific information about how the Forest intends to plan for and manage increasing winter recreation use.

### Hunting.

Hunting is an extremely important use of the Forest for many of the respondents. The effect of timber management activities on hunting opportunities was a major concern. Some respondents stated that the Forest should maintain roadless areas to protect big-game habitat, escapement, and a quality hunting experience. Others said that the Forest should not limit their opportunity to hunt by keeping areas roadless. Some respondents did not like to hunt in areas that had received timber management treatments. Others thought that more areas should be managed for timber production and other resources and provide a quality hunting experience with seasonal road closures.

Forest Service Response

In preparing the Proposed Forest Plan, the Forest completed an analysis of the current level of recreation activity on the Forest and made projections of future use. Estimated recreation use figures from our Recreation Information Management (RIM) records were used, as well as hunting use statistics prepared by Oregon Department of Fish and Wildlife. These current use figures were then expanded by the projections of growth in recreation demand outlined in the State Comprehensive Outdoor Recreation Plan (SCORP).

The information used for projecting recreation demand was the most current and accurate available. The Forest did not have the means to conduct separate analysis to develop more refined information than that already available.

Concern was expressed that the Forest did not adequately predict the potential increase in employment in the tourism and recreation business. Projections were made on the basis of statewide trends in population growth and dynamics. This does not account for site specific changes that could affect local economic conditions.

Changes made between the Proposed and final Forest Plans are believed to be more responsive to recreation trends and expressed user desires. Additional developed recreation facilities have been proposed, including a new campground in the Austin area that would provide recreation vehicle (RV) hookups and showers. This facility would be designed to accommodate both the bicyclists along a national bikeway and the contemporary camper looking for full facility campgrounds (Forest Plan, Appendix A, Table A-1).

In the dispersed recreation area, the Forest proposes the addition of 200 miles of groomed snowmobile trails and as much as 75 miles of designated off-highway vehicle (OHV) trails.

The Malheur National Forest has great potential for providing a wide range of recreation opportunities. It is the intention of the managers of this Forest to work with our customers, the Forest users, to develop partnerships that will capitalize on this potential. In so doing, visitors will have memorable experiences and the local economies will benefit from the influx of recreationists.

#### Off Road Vehicle Use/Motorized Recreation

The intent, in the Forest Plan, is to provide for a wide spectrum of recreation opportunities on the Malheur National Forest. This spectrum was determined by current use and anticipated demands. Motorized recreation is believed to be one legitimate use within this spectrum of opportunities.

There are recreationists who are looking for recreation opportunities in a semiprimitive environment with and without motorized vehicles. Conflicts often arise between the motorized and nonmotorized recreationist, particularly in a semiprimitive setting. With this knowledge, separate areas to accommodate the difference in user preferences are established.

According to Forest projections, sufficient lands have been allocated to meet a 50-year demand for recreation opportunities in a semiprimitive nonmotorized setting. The same is not true for the semiprimitive motorized needs. There will be sufficient space to accommodate the demand for motorized recreation in other settings, such that concern over resource conflict is not anticipated.

The trend is to move away from indiscriminate use of off-road vehicles, and to develop designated trail networks. These trails may be specifically designed for off-highway vehicles and/or they may utilize local roads that are closed to larger vehicles. The Forest will be developing these designated networks to meet user demands. The exact location of all of these facilities is not known at this time, they will occur in areas designated

for motorized use. At the time individual trail networks are developed, environmental analysis will be completed to assess the impacts to various resources, and designs will be implemented that minimize these impacts.

#### Winter Recreation

An increase in dispersed winter sports activities on the Forest is anticipated. In the budget proposal for recreation, funding was built in to increase staffing in recreation management so as to be responsive to and work with user groups such as the snowmobile clubs and nordic skiers.

Specific dispersed winter sports areas or trails have not been identified, as these are still developing. These facilities will be located where they are most compatible with other resources. Provisions were made in the Forest Plan to add 200 miles of snowmobile trails and 50 miles of nordic ski trails to the existing trail network.

#### Hunting:

The Forest Plan has been revised to provide additional areas where roads will not be developed and areas where roads will be closed to motorized use. Lands that will remain in an undeveloped state and closed to motorized access were increased from the Proposed Forest Plan to the final Forest Plan. Additional acres were added where the roads will be closed following project needs. Most of these acres are in areas that will be allocated to wildlife emphasis strategies.

There will also be an increased emphasis, in the Forest Plan, on closing local roads to meet big-game habitat requirements.

Additional seasonal closure areas were not identified in the plan, this does not mean that the option for additional seasonal closures is foregone. If specific proposals are brought up in the future, the Forest is willing to consider the additions based on public support and administrative impacts.

#### RESIDUE/FIRE MANAGEMENT

##### Comment Summary

Concern was expressed by many local residents, one State agency, and grazing permittees that too much slash is being left following timber harvest activities. These individuals feel these slash levels are unsightly, hinder livestock grazing, hinder big-game passage, cause recreationists to abandon areas, contribute to insect and disease epidemics, provide a fire hazard, and/or cause other resource problems. One comment was received concerning the lack of guidance in the Proposed Forest Plan for the habitat requirements of non-game wildlife species dependent on down, woody debris. Several respondents questioned the lack of recognition of the relationship between slash and long-term site productivity.

Many respondents supported an increased use of prescribed burning as a management tool, not only for slash reduction, but to reintroduce the natural role of fire in the ecosystem. There were a few comments, both in favor of and opposed to, allowing fire to play a natural role in wilderness. There were some concerns expressed about the effect of burning on air quality.

##### Forest Service Response

There is a fine balance between the amount of residue needed for wildlife and site productivity, and excess residue needing modification or removal for fire protection, insect/disease control, and animal movement. The Forest fuels standard is to reduce the fuel loading, at the lowest possible cost, to a level that will minimize the potential of catastrophic wildfire. The system for determining the amount of residue needing removal for fire protection will be guided by the National Fuels Appraisal process.

The Knutson-Vanderberg Act under the Sale Area Improvement Plan, deals with the removal of unwanted residue for resource objectives such as range improvement, wildlife habitat improvement, and site productivity enhancement

As identified in the Forest Plan, utilization will be a high priority in residue management. There will also be an increased use of prescribed fire to eliminate unwanted residue. This should increase big game and cattle movement, and stimulate forage production. Prescribed fire may also be used as an effective tool in reducing insect and disease problems.

The effect of all this should be a cleaner, more aesthetically pleasing Forest. Developed after and tiered to the Forest Plan, will be an additional plan which will give specific directions on how fire and fuels will be managed on the Forest. This has been referred to in the Forest Plan as the Fire Management Action Plan.

## RIPARIAN

### Comment Summary

Most of the public comments on riparian zone management can be grouped into three categories: (1) comments about the analysis, data, documents, and process; (2) comments about alternatives and management strategies, primarily Alternative F (the Preferred Alternative identified in the Draft EIS); and (3) comments about the "amenity" values of riparian zones.

The Environmental Protection Agency, Fish and Wildlife Service, Confederated Tribes of the Umatilla Reservation, and various interest groups (Trout Unlimited, Oregon Natural Resources Council, etc.) were very critical of the data used, the analysis performed and processes followed, the adequacy of the documents, and the lack of geographic specificity in the Forest modeling process. They stated that standards were too general and the monitoring plan was insufficient to protect riparian resources.

There was criticism of the riparian zone classification into satisfactory and unsatisfactory. The inventory process was not seen to be well-documented. Additional information about the total number of miles inventoried, and the criteria used, etc. was requested by Trout Unlimited, the Columbia River Inter-Tribal Fish Commission, Oregon Natural Resources Council, the Oregon Department of Fish and Wildlife, and others. Specific comments cited a riparian habitat evaluation procedure developed under the auspices of the Oregon/Washington Interagency Wildlife Committee ("Managing Riparian Zones for Fish and Wildlife in Eastern Oregon and Eastern Washington") which Regional Forester Worthington approved; this Forest did not use the Interagency Committee's procedure.

Most comments about the proposed management strategy for riparian zones consisted of expressions of dislike and there was considerable opposition to the practice of clearcutting lodgepole pine by Trout Unlimited, Columbia River Inter-Tribal Fish Commission, Oregon Environmental Council, and individual respondents. Some reasons stated for disliking the Forest proposal included expected decreases in water quality and increased sedimentation, decreased late season water flows, reduced visual quality in riparian zones, reduced fish populations, conflicts with big game and other wildlife, too much commodity production (grazing, timber harvest), and too little protection of amenity values. Others objected to the lack of information about how riparian management proposals would be implemented.

Many respondents said that riparian zones should be managed to emphasize the production of fish/wildlife, visual quality, and high quality water. Trout Unlimited, Oregon Environmental Council, Columbia River Inter-Tribal Fish Commission, the Fish and Wildlife Service and others felt that riparian areas should be mapped, including identification of satisfactory and unsatisfactory stream reaches. They requested that the desired future condition of riparian areas be described in terms of key vegetative species, condition and trend, woody debris objectives, streambank stability, overall condition of the watershed including uplands, and potential for fish habitat. Water quality alone

was not seen as a sufficient indicator of riparian quality. These respondents generally supported maintenance or enhancement of the Forest riparian zones for "riparian" values. Various respondents said that livestock use, timber harvest, and/or roads should be curtailed or eliminated, especially in unsatisfactory riparian areas. Others, including the Harney County Court, supported these uses in riparian areas accompanied by the best management techniques available to protect the resources.

The Northwest Forestry Association noted that various environmental groups would be likely to attack the Forest's conclusions and requested a more complete display of the scientific uncertainty in linking timber management activities to water quality. They stated that proper management, including sound sale design and mitigation measures, would produce high quality water and healthy fisheries. They also suggested a relaxation of standards on intermittent streams when water was not present. The Western Wood Products Association also requested further documentation or explanation concerning potential effects of timber management on sediment production, increased water temperature and increased water quantity. They felt that the sediment index model was not clearly explained and that direct ties between effects and planned activities were not described. They stated that the proposed management would not be likely to have a significant effect on water yield or quality. They further stated that road location was significant and should be controlled.

#### Forest Service Response

The management of riparian areas is not only one of the most controversial and sensitive issues, it is also one of the most intricately woven and complex resources to work with when establishing management practices. Although they occupy only 4% of the Forest's land base, riparian areas are the most productive and biologically diverse areas on the Forest. These areas provide important fish and wildlife habitat and often contain very productive timber stands and productive, lush forage in grazing allotments. Their gentle topography makes riparian areas attractive for road location and, in the semiarid west, the combination of water and riparian vegetation attracts recreationists. Because of the variety and sometimes conflicting nature of these concentrated uses, riparian areas have the greatest potential for resource-use conflict on the Forest.

Public comment and continued concern for these valuable assets brought about many changes in management plans for riparian areas. Specifically, Management Area 3 (Riparian) has been further subdivided into two new management areas. These are, respectively, Management Area 3A (Non-Anadromous Riparian Areas) and Management Area 3B (Anadromous Riparian Areas). The scope of planning, designing, and implementing riparian habitat improvement activities differ between management areas. The time frames for upgrading riparian areas into a desired future condition are 30 years for non-anadromous and 15 years for anadromous. One other difference is to make land ownership adjustments which emphasize obtaining or maintaining federal ownership adjacent to anadromous fish habitat. The descriptions and standards for each of these management areas can be found in the Forest Plan (Chapter IV, Section F).

Additionally, Forest-wide and management area standards have been rewritten to make them more specific and measurable (Forest Plan, Chapter IV, Sections E and F). Opportunities for improving standards pertinent to riparian area enhancement were significant in the Range, Roads, and Timber sections.

Changes in range standards include more restrictive forage utilization standards in riparian zones and suitable range lands (uplands).

Priority consideration has been given to those rangelands in unsatisfactory condition. Activity schedules displaying those allotments in unsatisfactory condition and the year all Allotment Management Plans (AMPs) will be updated can be found in the Forest Plan (Appendix A, Table A-10).

Changes in the road management standards have also been numerous. The most notable changes pertinent to riparian area management include

- a. Avoid locating roads in riparian areas while providing adequate local road access for management activities. Minimize the density of open roads in this management by obliterating, revegetating, or closing unnecessary roads or any roads causing significant resource damage
- b. Design and maintain roads to protect fisheries values and riparian area habitat.
- c. Provide seasonal closures during spring runoff when necessary to reduce sedimentation

Also, a review of the existing road system will be done and roads that no longer contribute to integrated land management objectives will be obliterated. Other road standards modifications will also have a beneficial effect on riparian area management (Forest Plan, Chapter IV, Sections E and F )

Increased emphasis on timber management standards (Forest Plan, Chapter IV, Management Areas 3a and 3b) will also play a significant role in riparian area improvements.

The net effect of all changes in riparian area management is to maintain shade, provide for streambank stability, protect water quality (especially in highly-sensitive areas), provide for a future supply of large woody debris, maintain a filter strip to prevent sediment from reaching the streamcourse, provide for visual quality, emphasize the production of fish and wildlife, and most importantly to ensure that management activities are subordinate to riparian-dependent resources

The monitoring plan has been expanded and revised to include more specific monitoring items and provide for a more definitive link to the implementation process (Forest Plan, Chapter V)

A riparian inventory will be completed for the entire Forest based on the process described in "Managing Riparian Ecosystems (Zones) for Fish and Wildlife in Eastern Oregon and Eastern Washington" (1979). This inventory procedure will be used to evaluate the present condition of riparian habitat, its potential for improvement, and provide a basis for establishment of riparian area habitat management objectives for all riparian dependent resources.

The 235 miles of "unsatisfactory" riparian areas as referred to in the Draft EIS have now been included in a revised and more complete Activity Schedule (Forest Plan, Appendix A, Table A-7) These 235 miles were derived from the Watershed Improvement Need (WIN) Inventory. Watershed problems were identified (e.g., unstable stream banks, gullies, etc.) which resulted in a classification of "unsatisfactory." Only a few miles of stream known to lack shade were included. This inventory did not include wildlife and fisheries information (shrubs, shade, and fish habitat). These items will be addressed in the riparian area inventory scheduled for completion by 2000. The WIN projects are identified on a Forest-wide map which is available for review in the Supervisor's office, John Day, Oregon.

It was never intended that the previously identified 235 miles were the only problem areas on the forest and that a complete riparian area inventory had been applied. The riparian inventory that will be implemented on the Forest will accomplish the following:

- a. Identify and prioritize riparian areas where high riparian resource value potential exists.

b Evaluate riparian areas using parameters such as percent stream surface shaded, percent stream bank stability, percent streambed sedimentation, and percent grass, shrub, and tree cover

c Determine the site potential of each stream reach for vegetative response, the time frame required to attain the desired response, and the management prescriptions under which the objectives can be attained.

The new inventory will not include subjective terms such as satisfactory and unsatisfactory. However, these terms will still be used in describing grazing allotments. Allotments with riparian areas in unsatisfactory condition denotes either "basic resource damage or other resource damage" The following criteria apply to "basic resource damage"

a Maximum summer water temperatures are elevated above State standards or other approved criteria on class I or II streams and this is largely due to the loss of shade-producing vegetation in the allotment

b. Less than 80 percent of the total miles of class I, II, and III streams are in a stable condition where this is largely due to the loss of stabilizing streambank vegetation

c Gully development of sufficient size to lower the seasonally saturated zone and change in the plant community type is occurring

d. Soil condition rating on 25 percent or more of key areas is rated poor or very poor

Adverse impacts on resources other than the basic soil and water resources is "other resource damage" An allotment meets this classification when ten percent or more of its area has damage to vegetation that is in excess of planned use

Grazing allotments with riparian areas in unsatisfactory condition can also be identified when on suitable range, forage condition is less than fair with a stable trend

#### RESEARCH NATURAL AREAS (RNA)

##### Comment Summary

The Washington Native Plant Society (WNPS), an organization of botanists, made some of the most substantive comments on research natural areas They recommended that the Cedar Grove Botanical Area be managed as a research natural area (RNA) instead of a special interest area The Washington Native Plant Society also commented on our inventory and evaluation process for RNAs, specifically questioning if our inventory complied with Regional direction to evaluate potential sites for unfilled categories of plant associations They were strongly opposed to any livestock grazing in RNAs and, recommended revision of our RNA management standards, as did individual respondents They also maintained that the Forest failed to present a monitoring and surveillance plan to ensure the continued viability of our RNAs They requested that the Forest include a timetable for completion of survey and establishment reports and made specific recommendations for standards to be included in this management area

One individual recommended that project activities be deferred in any potential RNAs that was not proposed for designation under the Forest Plan, unless it was deemed unsuitable or unnecessary by the area ecologist The Nature Conservancy also requested that project activities be deferred or modified to protect the natural plant communities for further evaluation

Another citizen was dissatisfied that the proposed RNAs did not include any timbered sites outside of wilderness The point was that RNAs in a variety of timber sites could provide some controls for scientific study in the future The Washington Native Plant

Society commented that the Forest's assessment of cumulative effects on RNAs was inadequate and mitigation measures should be described.

The Nature Conservancy proposed a boundary adjustment to the McClellan RNA to better protect a rare plant. The group also noted the potential of several other areas for research natural area status (Stink Creek, Shaketable, Dixie Butte, Utley Butte, Greenhorn Mountains, and Antelope Valley). There was generally endorsement of the three areas proposed for designation in the Proposed Forest Plan, including endorsement by the State of Oregon Division of Lands.

#### Forest Service Response

Research is an important element of land use planning. There must be a basis for determining the effects that human activities will have on the land. To provide a basis for comparison, tracts of land on which natural features are preserved in as nearly an undisturbed state as possible, are set aside. These areas are called research natural areas (RNAs) and are maintained for scientific and educational purposes. These tracts mimic those lands that are presently allocated for extensive human activity. The Pacific Northwest Regional Research Committee reviews the needs for RNAs and identifies candidate areas throughout the region.

The Draft EIS identified one existing research natural area (Canyon Creek), and two proposed research natural areas (Baldy Mountain and McClellan Mountain). Since that time, several proposals have been made and four proposed RNAs have been brought forward into the Forest Plan. These areas, in addition to the existing Canyon Creek RNA, are Dixie Butte, Baldy Mountain, Dugout Creek and Shaketable Mountain. Cedar Grove Botanical Area was not considered as a RNA due to its limited size and primary value as a special interest area (botanical). Cedar Grove was set aside because of the unusual occurrence of Alaska yellow cedar trees, that can be viewed by Forest visitors. On the other hand, RNAs should be areas that are typically representative of common vegetative communities, yet are presently being heavily impacted by human activities outside of the RNA. Forest visitors are discouraged from impacting the RNAs.

The Malheur National Forest inventory and evaluation process for RNAs is in compliance with Regional direction and coordinates closely with the Pacific Northwest Regional Research Committee which identifies and fills the needs for research natural areas. The Malheur National Forest does not have a timbered research natural area outside of wilderness boundaries. The regional need for timbered RNAs has been sufficiently met by the Wallowa-Whitman and Umatilla National Forests.

The guiding principle in research natural area management is preservation. Uncontrolled livestock grazing is not allowed. Stock may be used expressly to simulate a natural large ruminant population. Grazing is prescribed as a manipulative treatment for maintenance of a natural feature. Physical improvements are generally not allowed, except those considered essential to research and educational purposes. Some boundary fences in grazing allotments may be required. The establishment report for each RNA will dictate a grazing management strategy.

In response to public comment and recent evaluation, there has been a strong effort to revise and expand the monitoring plan. A monitoring item for RNAs has been included (Forest Plan, Chapter V).

The areas now included in the research natural area program and the dates for completion of survey and establishment report follow.

Area Name	Proposed District	Establishment	
		Acres	Reports
Dixie Butte	Long Creek	105	1992
Baldy Mountain	Prairie City	2,850	1990
Dugout Creek	Prairie City	270	1990
Shaketable	Bear Valley	375	1994

Research natural areas will not contribute to the allowable sale quantity, grazing potential, or recreational opportunities on the Malheur National Forest. The establishment reports prepared for and approved by the Chief of the Forest Service will, by specific area, establish conditions to be retained and the monitoring required to assure that objectives are met. Due to the preservation concept inherent in the management of these areas, adverse environmental cumulative effects are thought to be minimal or nonexistent. Establishment of these areas call for the removal of all disturbing activities.

### ROADLESS AREAS

#### Comment Summary

The public was very concerned about the amount and kind of information which was made available for their review relative to roadless area management. The display of information in the Proposed Forest Plan was seen to be inadequate and biased. The State of Oregon comments were directed to the rationale for selecting particular areas for semiprimitive recreation or for development activities. They stressed that the Forest should evaluate the areas against criteria for recreation, not wilderness. The State also was concerned about an apparent lack of coordination with adjacent Forest designations and questioned the economic values of semiprimitive recreation, as did the Wilderness Society. Comments noted that the presentation of the issue unnecessarily increased polarization of this issue. There appeared to be support from Associated Oregon Loggers, and other commodity interests, for development of management schemes for these areas that allow some type of timber management while retaining the natural character of the area. This was often mentioned in conjunction with emphasis on managing for some other resource, such as wildlife. There were several respondents who urged the Forest not to create *de facto* wilderness areas.

Concerns about roadless area management included provision of quality hunting, winter range, and escape areas for deer and elk; maintenance of semiprimitive motorized recreation opportunities; maintenance of old-growth habitat, maintenance of key watershed values such as anadromous fishery habitat, downstream irrigation, and domestic water use, maintenance of snowmobile access; the cost of development versus the value of the timber; effects of management on the local economy; and desires to "resolve the wilderness issue."

The long-term supply of semiprimitive recreation opportunity and the potential future demand for such opportunities was a concern of the State of Oregon, timber industry associations, and other respondents. Some respondents felt the demand was underestimated, while others felt it was overestimated.

Public comments also addressed the allocation of roadless areas. Comments indicated that the Proposed Forest Plan called for development of too many or too few roadless areas. Changes in allocation were also suggested for specific areas, as well as for all roadless areas as a package. Oregon Natural Resources Council, the Oregon Department of Fish and Wildlife, and other respondents requested that all roadless areas be retained and/or managed as semiprimitive. Oregon Natural Resource Council recommended specific boundary changes to many areas.

Associated Oregon Loggers, Northwest Forestry Association, Northwest Forest Resource Council, Western Forest Industries, and many other respondents requested that all road-

less areas be developed within the first decade. There were also numerous comments addressing a range of allocations between these recommendations

#### Forest Service Response

The disposition and future management of the currently inventoried roadless areas on the Malheur National Forest is a major issue and has generated a considerable amount of public comment. As a result of the public concerns, Forest personnel developed a new process to review each roadless area, making an assessment of their attributes and opportunities. Attributes and opportunities in recreation, wildlife, vegetation management, cultural resources, compatibility with adjacent non-Forest Service land management objectives, and unique natural features were examined. An economic analysis was also conducted on each area to assess the economic values of managing timber on these lands. The Forest used the RPA economic values, assigned by the USDA, for non-commodity outputs in semiprimitive areas (Final EIS, Appendix B, Section IV). This data was developed with the public comments for each roadless area and used to make management proposals.

As a result of this analysis the area assigned to semiprimitive management was increased from a total of 66,962 acres in the Proposed Forest Plan (Alternative F) to 79,854 acres in the Forest Plan preferred alternative (Alternative I). Areas have been assigned to differing management strategies, ranging from wildlife emphasis to semiprimitive nonmotorized recreation. Timber harvest activities are allowed in wildlife emphasis areas, however, the harvest intensities will be dependent on the management objectives of the area. All roadless areas within allocations that have scheduled harvest will be entered in the first decade. A table displaying the management area acres by alternative can be found in Chapter II of the final Environmental Impact Statement (Table II-4).

Some comments were received that referred to the Wilderness issue being resolved by the 1984 Oregon Wilderness Bill and that we were creating de facto wilderness by allocating lands to a semiprimitive setting. The allocation of lands for semiprimitive recreation opportunities is not related to Wilderness legislation. The primary forms of recreation on this Forest occur in dispersed area settings as opposed to activities needing developed facilities. It is believed that demands for a variety of dispersed recreation settings will continue into the future. The allocations made for semiprimitive and wildlife emphasis settings are in response to the current and anticipated demands for recreation opportunities that these management strategies will provide.

The existing wildernesses on this Forest will contribute to meeting that demand for primitive and semiprimitive settings, but they cannot be depended upon to provide for all of the demand. Wilderness, by legislative definition (1984 Oregon Wilderness Act), is an area where change occurs by natural process unaltered by human activities. Recreation use of wilderness is an acceptable use as long as it does not accelerate the rate of natural change. Forest Service management of wilderness is based under a non-degradation policy. If recreation use is causing degradation of the wilderness, that use will be reduced to a level where degradation no longer occurs. The tolerance for evidence of human activities in semiprimitive and wildlife emphasis areas outside of wilderness is greater, thus providing a greater capacity for recreation use.

#### ROAD MANAGEMENT

#### Comment Summary

The Oregon Department of Fish and Wildlife, Oregon Natural Resources Council, and the public expressed concern about the lack of a specific road use policy for the Forest as a whole, and for some resources in particular. General concerns included a belief that road densities were too high, that local roads should be closed and put back into resource production immediately following timber harvest, and that in many cases road construction and maintenance standards were too high.

The greatest concern is the proposed roads policy in relation with big-game habitat and

hunting. Specific desires expressed include permanently or seasonally closing roads to enhance big-game summer and winter range. Included with this concern was increasing elk habitat effectiveness, providing elk escapement areas, and providing for a quality hunting experience (Non-Motorized).

Support for a specific road closure policy for elk habitat was expressed by the State of Oregon, Oregon Natural Resources Council, and much of the public, and was included by both timber industry and environmental organizations, as seen in the Preferred-Plus and the Citizen's Multiple Use alternatives.

Concern was expressed by Oregon Natural Resources Council and other commentors about the cumulative effects of road building on other resources such as water quality, late season flows, and sedimentation.

#### Forest Service Response

Management of the Forest road system is of particular concern to all individuals using the Malheur National Forest for livelihood or recreation. A transportation system offers access to recreation sites, hunting areas, campgrounds, mining claims, and timber sales. However, road building may have a significant impact on all other resources within the Forest and must be planned, and managed, with all resource values considered.

After reviewing public comments received and evaluating the present road system, the management direction for road building has been revised. This direction is considerably more extensive and specific.

Roads will be planned, designed, and constructed to the minimum level necessary to meet integrated land management objectives (i.e., the needs of all the resources). Forest-wide and management area standards (Forest Plan, Chapter IV, sections E and F) will provide direction on how this will be accomplished and how the transportation system will be managed.

The Forest Management Standards specify that nonclassified lands will be managed to meet stated Elk Habitat Effectiveness Index values. In order to meet this specification, selected roads will be

- a. physically closed with barriers, or
- b. opened to use by permit only, or
- c. opened to use for Forest Service administration only, or
- d. opened seasonally only, or
- e. obliterated.

A travel management plan will be developed, published, and used to document travel management restriction. Project plans for projects requiring the use of roads will document project travel management restrictions. Travel on roads will be monitored to establish compliance with restrictions and ensure that travel management objectives are being met.

Area or project level transportation planning will incorporate an interdisciplinary analysis of effects on soils (compaction, loss, puddling, or productivity), water quality (temperature and turbidity), water run-off (when, where, and how fast), and riparian areas (barriers created at crossings, loss of shading, sedimentation, and how best to avoid or mitigate). The cumulative effects on these resources of adding more roads will also be analyzed.

Additionally, Alternative I (the preferred alternative) identifies 618 miles of new road construction by timber purchasers for the first decade. This amount is fairly low, as compared to other alternatives. This represents a reduction of 250 miles over the decade from what was identified in Alternative F (the preferred alternative in the Draft Environmental Impact Statement). Estimates of road reconstruction by timber purchasers did not change enough to be significant.

## SNAG MANAGEMENT

### Comment Summary

Concern was expressed by Oregon Natural Resources Council, the Oregon Department of Fish and Wildlife and others, that the snag levels proposed in the Forest Plan were not sufficient to support viable populations of cavity dependent species. Some respondents also felt that large diameter snags would be gone within a short period of time and replacement trees were not being provided for to meet future needs. Concern was also expressed that large acreages with only 20 percent snag levels would not meet distribution requirements. Some Forest personnel also were concerned that the geographic areas being used to manage for and evaluate snag levels were too large.

The State of Oregon recommended that the Forest manage for 60 percent of potential populations on general forest lands and 100 percent on all other forest lands. The Oregon Natural Resources Council called for 80 percent of potential on general forest lands and 100 percent on all other areas. The Washington Native Plant Society called for a Forest-wide prohibition on snag cutting for fuelwood. They expressed particular concern about the paucity of snags in the ponderosa pine forest community. Oregon Department of Fish and Wildlife, Oregon Natural Resources Council and other respondents were concerned about the effect of the Forest firewood policy on the supply of standing snags.

### Forest Service Response

The National Forest Management Act requires that fish and wildlife habitat be managed to maintain viable populations of existing native species. Habitat for these species will be provided to support at least a viable population of reproductive individuals, and be well distributed so that these individuals can interact. Management of snag habitat capable of supporting at least 40 percent of the potential population of primary cavity nesters will maintain viable populations of these birds and secondary cavity nesters. This will be the standard requirement for general forest areas (Forest Plan, Chapter IV, Section F).

Snag habitat must be provided within land areas no larger than normal harvest unit size (40 acres). These densities will be maintained through the full rotation on these areas by providing for green replacement trees that will become snags of adequate size when existing snags fall. Snags will be retained in patches where possible, and patches should be no closer than 750 feet because of territories of cavity nesters (Forest Plan, Chapter IV, Section E).

In addition, snag habitat will be managed to support 60 percent of potential populations of dependent species in riparian areas, and natural population levels in old-growth areas, semiprimitive areas, wilderness areas, bald eagle winter roost areas, and unsuitable timber lands. Forest management direction (Forest Plan, Chapter IV, Section E) also requires that fuelwood cutting is managed to ensure that wildlife tree management levels and objectives are met.

## SOCIOECONOMIC

### Comment Summary

Nearly one-third of all the responses to the Proposed Forest Plan indicated that jobs and county revenues should be maintained. Many of these respondents used the Citizens Multiple Use Alternative form to relate this concern.

The production of ponderosa pine on the Forest was identified as a very important facet of the local economic picture by the Harney County Court, and by various timber com-

panies, industry and environmental organizations, and governmental agencies such as the Associated Oregon Loggers, Northwest Forestry Association, Northwest Forest Resource Council, the Sierra Club, Oregon Natural Resources Council, the State of Oregon, and others. Continued production of ponderosa pine from the Forest is beneficial for community stability because of the unique market position that ponderosa pine maintains. Opinions vary on the type of strategy that should be employed for ponderosa pine production from the Forest. Some respondents said that the Forest should reduce our harvest levels, which would result in sustained production of large diameter ponderosa pine, while others maintained that we should not reduce the harvest levels of ponderosa pine because of current market values

Resource outputs from the Malheur National Forest are very important to local counties. Grant and Harney Counties are currently considered to be the Forest zone of influence; Baker, Union, and Wallowa Counties have been proposed as possible additions to our zone of influence by various timber companies, ranchers, and others (particularly because of possible changes in demand for Forest timber as the Forest Plans in northwest Oregon are implemented)

The Forest resources are critical to the survival of local economies. Respondents perceived the role of the Malheur National Forest differently, depending on their perspective. Some respondents see the Forest's role primarily as providing a sustained yield of commodity outputs which sustain existing industries and occupations. Others see the Malheur National Forest as the drawing card for recreation-oriented growth and diversification of the local economies. They see the value of second-growth timber as questionable, feeling that it should not be counted on to support local economies in the future. Others see the potential to maintain existing industries and still increase tourism and recreation.

Oregon Natural Resources Council, and other respondents were concerned that below-cost sales may result in less mitigation, short-cutting, cost-cutting, and other concerns which could result in damage to Forest resources. The respondents were concerned that emphasizing the production of mixed conifer species may result in more below-cost sales because of the lower valued material being harvested.

Concern was expressed by several respondents about the proposed Forest budget, and what actions will be taken if the Forest budget is not adequate for the Plan implementation. The State of Oregon requested that the Forest specifically address the likelihood of funding for various programs and the impact of a less-than-fully funded budget.

The State of Oregon; various timber industry organizations such as the Western Forest Industries Association, Columbia River Inter-Tribal Fish Commission, Oregon Natural Resources Council, and others expressed comments and concerns about our demand analyses for timber, recreation, fisheries, wildlife, etc. Associated Oregon Loggers and the Northwest Forest Resource Council questioned the economic assumptions used for future projections of timber values.

Many respondents expressed concern for what the Malheur National Forest will be like for future generations. Their concerns range from the provision of timber-related employment opportunities to recreational opportunities (hunting, fishing, sightseeing, etc.) for future generations.

Community stability was a concern of many respondents, although opinions varied on how to promote community stability. Some respondents believe that a sustained yield of ponderosa pine equates to community stability, while others think that diversification of the local economies (i.e., increased recreation-oriented opportunities, etc.) should be the emphasis. Some respondents opposed any Forest Service consideration of community stability as a factor in decision-making. They stated that this was not the responsibility of the Forest Service.

Forest Service Response

The Forest has been an important source of employment and revenue for local residents for many years, many of the residents in Grant and Harney Counties are dependent upon products from the Forest (e.g., forage, timber) for the maintenance of their lifestyles. In making resource management decisions, probable effects upon the local economies were considered (Final EIS, Chapter IV, Section C).

Modifications to Forest-wide standards have been made to provide more emphasis on the production of ponderosa pine from the Forest (Forest Plan, Chapter IV, Section E). Ponderosa pine volume harvested under this Forest Plan will be less than recent harvest levels. In future planning periods, the volume of old-growth ponderosa pine available for harvest is anticipated to further decline simply due to the historical heavy emphasis on ponderosa pine harvest. The importance of ponderosa pine to the local economy is addressed in the Final Environmental Impact Statement (Chapter III, Section C), Ponderosa pine volume by alternative is displayed as an indicator of response for resolution of the timber management issue (Final EIS, Chapter I, Section K and Chapter II, Table II-12).

The Forest zone of influence was determined to be Grant and Harney Counties in 1981, using criteria still considered valid. Although changes in historical timber sale purchase patterns in the last 1-2 years have occurred, conditions over the last decade are indicative enough to project a zone of influence for the next 10-15 years. When considering effects on local economies, discussions have been brought forward on the importance of the Forest to adjacent counties (Final EIS, Chapter III, Section C). A review of the Forest's zone of influence will be done during the next planning cycle.

The importance of the Forest to the local communities is realized, including the supply of raw materials for commodity production industries and the availability of recreational opportunities to all types of recreationists (i.e., local and nonlocal). In the resource management decisions for the Forest Plan, there is necessarily a concerted effort to balance commodity production with the maintenance of amenity-oriented experiences (i.e., wildlife and fish emphasis, dispersed recreation experiences, etc.). Management of the Malheur National Forest is intended to provide raw materials to support commodity production industries that are the current base for the local economies, while maintaining the character of the Forest in a manner that will appeal to dispersed recreationists (Final EIS, Chapter IV, for a complete analysis of the effects of Alternative I (the Preferred Alternative)).

The Forest has reviewed the economic assumptions on second-growth timber. The basic assumptions have not been changed, key assumptions include: 1) markets will be available for smaller diameter logs from the Forest, and 2) prices paid for stumpage will vary by diameter of the logs offered (i.e., existing price-diameter relationships will be effective in discounting the relative value of smaller diameter material - see Final EIS, Appendix B).

Forest-wide standards will be followed during all phases of project planning, design, and implementation. These standards do not permit "less mitigation, short-cutting, cost-cutting, etc.," which might result in damage to Forest resources (Forest Plan, Chapter IV, Section E). Additionally, revisions to strengthen the monitoring plan (Forest Plan, Chapter V) are provided, with additional measures to ensure that project activities do not result in resource damage. Also, greater emphasis will be placed on the production of ponderosa pine from areas of the Forest that have historically produced ponderosa pine (Forest Plan, Chapter IV, Section E). This is a long-term strategy and the results will not necessarily be realized for many decades.

The chapter (in the Forest Plan) that discusses implementation (Chapter V) and the Forest Budget has been revised. These revisions include more specific discussions of "key output-budget" relationships which are especially sensitive to the Forest budget, and the impacts to the Forest if these programs are not fully funded. The monitoring

plan has also been revised (Forest Plan, Chapter V) to increase monitoring activities for the actual Forest budget relationship to the planned Forest budget (including program monitoring). A discussion of funding potentials for various programs is not considered appropriate at this point, considering the role that Congress plays in determining program appropriations and emphases for the Forest Service.

The Forest has reviewed the comments and suggestions on demand analyses, and has incorporated some suggestions on clarification. The analyses in the Draft Environmental Impact Statement are believed adequate for use in the Final Environmental Impact Statement and Forest Plan; new analyses for these resources in future planning efforts will be undertaken.

Concerns about the future condition of the Forest and the relationship to existing lifestyles have been considered in making resource management objectives. The Forest Plan will chart a course of action that is intended to provide for sustained outputs of products and opportunities from the Forest (Forest Plan, Chapter IV, Section C).

Community stability concerns have been considered in establishing resource management objectives. They are intended to show consideration to all opinions and management philosophies of the respondents. In making recommendations for resource management, the Forest looked for a balance in resource programs and outputs, ones which would maintain or enhance the local communities that are nearby or dependent upon the Forest.

## SOILS

### Comment Summary

Comments on soils addressed the Forest standards, monitoring, and information presented. Protection of the soil resource was important to all who commented on this topic. The Environmental Protection Agency, Trout Unlimited, and others commented that the standards for soil protection were too general to assure adequate protection of the resource. Many commentators expressed the opinion that clearcuts, especially on steep ground, would increase erosion; road construction and grazing were also considered to increase erosion. Grant County Stockgrowers and other individual commentators suggested that more grass seeding be planned following timber activity to reduce erosion.

The Environmental Protection Agency (EPA) and Western Wood Products Association noted that the discussion of sediment yield should be expanded to clarify the assumptions and methods used to derive the index used to compare alternatives. Environmental Protection Agency and the Oregon Department of Fish and Wildlife recommended that information include a summary of the extent and location or mapping of high-hazard lands, a summary of management concerns and the risks of sedimentation caused by various activities. They requested more emphasis on monitoring as a screening tool to determine allowable levels of activities and cumulative effects within a drainage basin.

### Forest Service Response

Soil productivity protection is a major consideration in all project level analysis. The Forest-wide standards (Forest Plan, Chapter IV, Section E) have been revised to make them more specific and measurable. These standards will be closely followed during project planning. The environmental analysis process used in project planning will identify measures to be taken to mitigate adverse soil loss or impacts and identify several viable alternatives per project. Activities that would significantly reduce soil productivity are *not considered*.

Erosion is a major Forest concern since it is considered a permanent loss of site productivity. The National Forest Management Act (NFMA) requires that plans be developed in accordance with the Multiple Use Sustained Yield Act of 1960. The NFMA further requires regulations to be developed to ensure that there will not be "substantial and permanent impairment of the productivity of the land." Standards have been developed to maintain soil productivity and minimize erosion.

Measures to reduce erosion are required in every timber sale contract. Clearcutting on steep slopes, road construction, and grazing practices are all managed to minimize erosion. Measures used to mitigate soil loss include water diversion structures (such as waterbars) and grass seeding (Final EIS, Chapter IV, Section C).

Seeding is a mitigation practice that is provided for in most timber sale contracts. There are two types of seeding, erosion seeding and forage seeding (Final EIS, Chapter IV, Section 3). While erosion seeding is limited to areas of high erosion hazard, forage seeding can be applied anywhere there is a potential to grow forage for livestock production. As a minimum, erosion seeding is to be applied on 1) all disturbed soil within 100-200 feet of a class I, II, III, or IV stream or where eroded material could reach a stream, and 2) compacted skid trails with slopes greater than 20 percent. In most cases, grass seeding on these sites, in conjunction with the normal waterbarring, provides sufficient protection against erosion. It is common practice to forage seed all the disturbed soil that is not erosion seeded. The only timber harvest units that are not seeded are regeneration units where tree seedlings are being established.

Sediment yields were developed by adjusting computations from the Modified Universal Soil Loss Equation (MUSLE) for Forest conditions and erosion factors. The index values are used to compare planning alternatives. The discussion of sediment yield in the Final Environmental Impact Statement (Appendix B, Section F) has been expanded to better describe the methods used to derive the sediment index.

Soil mapping units and their management interpretation (i.e., erosion hazard, compaction hazard, etc.) are published in the Soil Resource Inventory and are available upon request at the Supervisor's office, Malheur National Forest, John Day, Oregon. Management concerns and soil hazards are identified for each project in the environmental analysis process.

Intensive soil monitoring is an integral part of the soil management program on the Malheur National Forest. Significant changes in management practices have been made as a result of soil monitoring. Discussions in the Final Environmental Impact Statement have been expanded to emphasize the importance of monitoring, (Chapters III and IV). The monitoring plan for the Forest has been revised and is now more specific and complete. There is a monitoring worksheet for soil productivity included in the monitoring plan (Forest Plan, Appendix J).

## **SPECIAL INTEREST AREAS**

### **Comment Summary**

The Washington Native Plant Society (WNPS), an organization of botanists, made some of the most substantive comments on special interest areas. The Washington Native Plant Society supported our proposed designations of the three areas as special interest areas, however, they did not agree with continuance of permitted grazing in these areas, especially the Cedar Grove Botanical Area. They recommended that Cedar Grove be designated a research natural area, with livestock use excluded. Also, they agreed with management strategies for mineral withdrawal and recreation use and they recommended that the Forest not expand the developed recreation facilities at Magone Lake.

The Oregon Natural Resources Council (ONRC) recommended the Ice Cave on the Burns Ranger District should receive "total protection including no logging on the short trail." They also recommended that other small special interest areas be inventoried and protected in a undeveloped allocation. In addition, they suggested that "small pretty areas" should be recognized and protected under the "Special Interest Area" heading of their response.

The State of Oregon (Division of Lands) supported special interest area recommendations, Alternative I (preferred) will maintain recommendations similar to that of the Oregon Natural Heritage Advisory Council (NHAC).

Two additional areas have been recommended for special interest management on Prairie City Ranger District. These areas include a "perched-water table" spruce bog, and a portion of the Sumpter Valley Railroad. The historical railroad district was also identified by the Fish and Wildlife Service as a potential special interest area.

**Forest Service Response** Cedar Grove was not recommended as a research natural area since it was not needed to fill specific research needs. Cedar Grove covers about 100 acres, considerably less than the 300-acre size suggested for research natural areas. Rationale for not recommending this area as a research natural area is that it is a public interest area and the emphasis is to continue to encourage people to visit this unique botanical site. As a research natural area, Forest management would require restrictions on use, not encouraging recreational visits.

Special interest areas are set aside for their uniqueness (historical, geological, botanical, zoological, paleontological, etc.) Public enjoyment of these areas is encouraged. On the other hand, research natural areas are tracts of typical lands set aside for research purposes (Final EIS, Chapter II, Section B, Management Areas by alternative).

During the summer of 1989, the Forest began reconstructing the campground and day use facilities at Magone Lake. This project has been designed to upgrade the facilities in the complex and to control the traffic within the site to minimize impacts. This is not a site expansion project, most of the construction activity will occur within the limits of the existing site.

The Forest has not designated any specific "small pretty areas" to protect via the Forest Plan standards. Provisions have been made to identify these areas and record them so management allowances can be made to maintain their integrity.

The Forest will develop a management plan for the Sumpter Valley Railroad. The management plan will provide direction for preserving segments of the old grade. The Malheur National Forest, in cooperation with the Wallowa-Whitman National Forest, will be developing interpretive sites along the railroad. A portion of the railroad (16 acres) along Oregon State Highway 26 from the Forest boundary to Dixie Summit will be managed as a special interest area.

The 32-acre perched water table spruce bog, known as Fergy's Bog, will be managed as a special interest area on the Prairie City Ranger District.

## FOREST STANDARDS

**Comment Summary** Comments from the general public, other agencies, and in-service reviews centered on the general nature of the Forest standards. Major comments from the State of Oregon, environmental organizations, and in-service reviews stated the standards were too vague, too general, and read like goal and objective statements or "motherhood" statements, rather than true, measurable standards. One State agency expressed confusion regarding how the Forest-wide standards applied to individual management areas.

Respondents generally felt that for standards to be meaningful, they should be strengthened to provide clear on-the-ground direction. There was also strong support from one in-service group and some State agencies for standards to be measurable and linked to the monitoring plan. They felt this would provide information on how well the standard was being followed and if it was meeting the management objectives for a given management area.

**Forest Service Response** Since publication of the Draft Environmental Impact Statement and Proposed Forest Plan, there has been an extensive interdisciplinary effort undertaken to revise the Forest

Plan Standards (Forest Plan, Chapter IV, Section E). These revisions include clarifications to make the standards more measurable, specific, and implementable. Revising the monitoring plan (Forest Plan, Chapter V) will allow the scrutiny necessary to more closely evaluate how Forest Plan Standards are being applied.

As stated in each section of specific Management Area Standards (Forest Plan, Chapter IV, Section F), Forest-wide management direction is applicable to each management area unless superseded by specific management area direction (i.e., standards).

### THREATENED, ENDANGERED, SENSITIVE SPECIES

#### Comment Summary

Commentators urged the Forest to make several additions or improvements to the planning documents to better address their concerns about this topic. These suggestions include:

- a. Specific standards for protecting and preserving the diversity of native plant communities on the Forest;
- b. conduct Forest-wide inventories for sensitive plant species (preferably conducted by field botanists), not just during project analysis, as a limited inventory does not give a complete picture of the status of the plant;
- c. list all species of concern on the Forest in the planning documents, reference was made to discrepancies between the State of Oregon listings and the species that were identified;
- d. include specific standards and a comprehensive monitoring program to assure protection of sensitive plant species such as *Luna serpentina*;
- e. include "information needs" concerning native plants in that section of the Forest Plan;
- f. provide detailed information about the effects of the Forest Plan on native species, specifically the effects of noxious weed introductions and the role of livestock.

#### Forest Service Response

Timber harvest, livestock grazing, and recreation use will affect native species and plant communities. Timber harvest will maintain relatively common forest communities in early and mid-successional stages, except in special management areas such as old growth or riparian. Trampling by forest visitors in heavy use areas and road construction may impact plant communities. The Forest has developed standards for protecting and preserving sensitive plant communities. Livestock grazing may select in favor of more palatable understory plant species. Plant communities within research natural areas (RNAs) are to be maintained in a natural state. There are four research natural areas and a special use area (botanical) on the Forest. They are described in the Final Environmental Impact Statement, (Chapter III, Section B) and management direction is provided in the Forest Plan (Chapter IV, Section F). Additional potential RNAs will be evaluated in the next Forest Plan revision.

Threatened, endangered and sensitive plant and animal species are listed in Chapter III, Section D of the Final Environmental Impact Statement. This list was extracted from a Region-wide list. Forest Management Direction in Chapter IV (section E) of the Forest Plan states that Forest-wide surveys will be conducted for sensitive plants. This will be done by contract or by adding botanical expertise to the Forest staff. Inventories will be done during the proper season for detecting species presence and estimating abundance. Additional data on sensitive plants has been added to the "information needs" section of the Forest Plan (Chapter II, Section E).

No management activity will be undertaken that will adversely affect a sensitive species population. If necessary, critical habitats will be excluded from timber harvest activity, livestock grazing, or recreation use. Collection of sensitive plants will be prohibited except by special permit (Forest Plan, Chapter IV, Section E). In addition, the Forest has included the need for data on threatened, endangered, and sensitive species on the information needs list in the Forest Plan (Chapter II, Section E).

Livestock transport seeds of noxious and exotic plants onto the Forest from adjacent lands during the growing season. Seeds of these species also enter the Forest in road mulch, and in hay used for horses and bedding by hunters. The Forest Service (Region 6) has entered into a memorandum of understanding with the Oregon State Department of Agricultural for the control and eradication of noxious weeds. Present control methods include hand or mechanical treatment and biological control with insect predators.

## TIMBER MANAGEMENT

### Comment Summary

Comments about timber management centered on the transition from a wild to an intensively managed forest. There is strong public sentiment to maintain the present character of the Forest, with large diameter ponderosa pine as the predominant species on the Forest. Support for maintenance of the existing Forest character, uneven-aged management, maintenance of ponderosa pine species, and associated issues was expressed by the Grant and Harney County Courts, environmental organizations such as the Nature Conservancy, Wilderness Society, and Sierra Club (Blue Mountain Group), and by timber industry organizations such as Associated Oregon Loggers, Northwest Forest Resource Council, Western Forest Industry Association, and Northwest Forestry Association. The means of implementing and defining uneven-aged management and maintenance of ponderosa pine differed among these groups.

These concerns were also a major portion of the State of Oregon's comments. The State called for analysis of "uneven-aged (sic) management . . . to allow sustained production of clear-boled, insect resistant ponderosa pine with diameters of approximately 20 inches in rotation ages close to 100 years." Many respondents expressed a dislike of even-aged management in general, and clearcutting in particular, expressing the belief that uneven-aged management better protects all resources.

The level of timber harvest was a concern of nearly everyone who commented on timber management. Some respondents expressed concern about the 55 million board feet increase over the 10-year average sale program of 203 million board feet (1977-1986). Harvest levels at or below this 10-year average sale level were recommended by a coalition of environmental organizations as expressed in their Citizen's Multiple Use Alternative. Other respondents said that proposed timber harvest levels were too low, and that all the available land base (particularly existing non-Wilderness roadless areas) should be available for timber harvest to provide local employment and payments to counties. Support for maintained or increased harvest levels (245 million board feet or higher annual allowable sale quantity) was proposed by the forest products industry and others who support the timber industry developed "Preferred-Plus Alternative."

Grant and Harney County Courts, Associated Oregon Loggers, Northwest Forestry Association, other timber industry respondents and various individuals, suggested that an increased salvage program is needed. Grant County Court supported a departure from sustained yield to salvage insect infested and diseased trees. The Bonneville Power Administration commented that the Plan did not adequately address the potential for utilization of biomass as an energy resource.

Several respondents expressed concern about the assumptions used to develop the timber management parts of the planning model. Others did not address specific technical aspects but expressed their concern in terms of support for long-term sustained yield.

Comments from individuals, other agencies such as the Environmental Protection Agency, the State of Oregon, and environmental organizations stated that the standards for timber management were too vague and were not measurable. It was suggested that standards also be more clearly linked to the monitoring plans

Forest Service Response Timber, as a renewable resource, is of strong concern to all those with an interest in the Malheur National Forest. Timber cutting plays a big role in the management of the Forest, because this activity has the potential to impact every other resource on the Forest. After reviewing public comment and recent analysis, many changes have been made which affect the amount of timber sold annually, the types of harvests allowed, and where and when timber is cut.

Uneven-aged management is felt by many who responded, to be the best management choice for preserving Forest character, maintaining sustained production of ponderosa pine, and providing the best possible protection of all resources. Uneven-aged management will now be applied to the Malheur National Forest in the following ways:

a. Riparian Areas - All timber working groups in these areas (Management Areas 3A, 3B) will be managed emphasizing uneven-aged systems (Forest Plan, Chapter IV, Section F).

The entry schedule for uneven-aged management has been lengthened in the riparian areas. On average, timber harvest treatment activity will occur on the same acres once every 40 years.

When harvest does occur, the heaviest stands of vegetation will be left next to the stream where stream surface shading, wildlife, and fishery needs are critical. More trees will be designated to be retained for wildlife and fisheries needs (i.e., large woody debris, snag replacement trees).

b. Visual Corridors - Uneven-aged management will be used in these areas (Management Area 14) to meet visual quality objectives for retention, partial retention and modification. These objectives have been further defined, with ranges of tree sizes described to meet the desired condition (Forest Plan, Chapter IV, Section F).

c. General Timber Harvest - Uneven-aged management in the General Forest (Management Area 1), Winter Range (Management Area 4A), and Wildlife Emphasis areas (with scheduled harvest, i.e., Management Areas 20A and 20B) will provide, on average, two trees 20 or 24 inches in diameter at breast height (DBH) and five replacement trees 16-18, or 18-24 inches in DBH per acre, depending on the uneven-aged management strategy employed. These intensive management strategies will be applied on the ground in two acre (or less) groups and on as much as 25 percent of the acres suitable for timber management. Actual application will be determined after a site-specific evaluation to determine the best management prescription, based on biological and social objectives for an area (Forest Plan, Chapter IV, Section F).

As a result of applying uneven-aged management, there will be an increase, over time, in ponderosa pine to be grown and harvested from those acres receiving the silvicultural treatment. The ponderosa pine species more readily lends itself to easily-maintained uneven-aged management silvicultural treatments (Final EIS, Appendix E) than the other commercially important timber species found on the forest. Ponderosa pine has a greater potential to naturally produce an uneven-aged stand, is less susceptible to major insect and disease agents, and has a greater tolerance for fire and cutting activity damage. Thus ponderosa pine will become more prevalent in those stands receiving the uneven-aged treatment.

In Alternative I (the Preferred Alternative), there will also be an increase in the amount of ponderosa pine grown and harvested Forest-wide over time. However, the increase will be gradual, and the harvesting strategy will result in more ponderosa pine being harvested throughout all decades as compared to the Proposed Forest Plan (Alternative F). There will still be a decrease in ponderosa pine by the fifth decade, but less than in the Proposed Forest Plan (1987). There will also be a subsequent increase in ponderosa pine volume in future years, reaching 50 to 60 percent of harvestable volume in eighty to one hundred years.

Favoring the ponderosa pine species will also result in the increased use of clearcutting the mixed conifer working group sites to achieve the desired species mix. This is due to the fact that ponderosa pine does not reproduce well under other species. To keep clearcutting to a minimum, natural regeneration will be the desired or favored method of regeneration wherever possible, once a site-specific evaluation is made (Forest Plan, Chapter IV, Sections E and F). While it is necessary to minimize the adverse impacts of clearcutting, if they are determined to be the optimal harvest method, clearcuts will be distributed over time more evenly, rather than passed on to future generations for resolution.

After review of the Forest stand conditions, technical changes were made to the application of timber prescriptions inside the FORPLAN computer model have been made. These FORPLAN model changes include: a refinement of the number of acres that are found to have a manageable understory (based on a review by watersheds, it was found that roughly 60 percent of these type stands could be managed Forest-wide, this average varying greatly from watershed to watershed), commercial thinnings were allowed to be scheduled for management, and uneven-aged management treatments are available to areas based on species composition and stand health.

Alternative I (the Preferred Alternative) also proposes several land allocation changes that will effect allowable sale quantity. After further review, based on knowledge of individual areas, public comments, and overall resource objectives, eight roadless areas, in total or part, will be kept roadless for recreation needs. Two of these areas, Aldrich Mountain and Glacier Mountain, were enlarged to better meet management objectives. Four roadless areas are now assigned to Wildlife Emphasis Without Scheduled Harvest. Two roadless areas are now assigned to Wildlife Emphasis With Scheduled Timber Harvest. Snags and snag replacement strategies will ensure that cavity nester habitat is retained at higher levels across the Forest. Alternative I also maintains 25,000 acres on an extended rotation as old-growth replacement stands.

All of these changes will have an effect on the character of the Forest. The objective is, where possible, to maintain the present appearance of the Malheur National Forest by providing more large diameter trees, emphasizing ponderosa pine, and retaining roadless areas, snags, old growth, old-growth replacement, and riparian areas. The character of the Forest will be changed. However, the overall objective is to maintain the natural beauty, while providing for commodity production and employment opportunities.

The proposed allowable sale quantity (ASQ) will be reduced in both cubic foot and board foot measure from changes made in Alternative I (Preferred Alternative). Under Alternative I there will be a reduction of 6 MMCF per year and 34 MMBF per year in ASQ, in the first decade, as compared to Alternative F (Final EIS - Draft Preferred Alternative). This will result in an annual allowable sale quantity of 200 MMBF for the first decade.

## TRAILS

### Comment Summary

There is widespread support from individuals, the State of Oregon, Oregon Natural Resources Council, and other organized groups for maintaining a high-quality hiking trail system across the Forest, especially in conjunction with backcountry areas. There is

concern about conflicts between motorized and nonmotorized use, with expressed desires to reconsider the uses allowed in specific areas (e.g., Malheur River, North Fork Malheur River) There is a high level of concern about a general nationwide trend to fewer trails on National Forest System lands and about the loss of existing trails on the Malheur National Forest due to logging and road building under the Proposed Forest Plan There were requests for more specific information regarding trail management under the Plan and opportunities to designate significant trails with historical value and interest

#### Forest Service Response

In response to the public comments, the Forest will make additions and changes to the Forest trail system in the Forest Plan The Forest proposes to construct 200 miles of snowmobile trails across the Forest, in addition to 10 miles of horse/hiker trail in the McClellan Semi-Primitive area Additional trails will be constructed as site-specific plans for managing semiprimitive and roaded natural areas are developed. Portions of the local road system and old railroad grades will be considered for designation for all-terrain vehicle/off-highway vehicle (ATV/OHV), horse/hiker, and nordic skiing use

Much of the existing trail system was developed many years ago when they were used strictly as a means of getting from one place to another The Forest will be assessing the relocation of portions of trails to enhance the recreation opportunities that the trails offer and also to reduce environmental damage and trail maintenance due to poor locations All of the trails that are currently maintained on the Malheur National Forest trail system will be retained

Many of the trails do not have acceptable trailhead facilities or access roads Several trailheads are listed in the capital investment program for the next 10 years The Forest will continue to work toward providing acceptable access and appropriate parking facilities for the trail system

The North Fork Malheur River trail was changed from a motorized trail to a nonmotorized trail in the Forest Plan, and on the Malheur River trail motorized use will be limited to two-wheeled vehicles

A detailed capital investment program for trail construction/reconstruction was developed and is displayed in the Forest Plan (Appendix A, Table A-2)

#### VISUAL RESOURCE MANAGEMENT

#### Comment Summary

There was a great deal of public comment about the proposed change in the visual character of the Forest under the Proposed Forest Plan Various respondents felt that we may be choosing the wrong corridors, be allocating too high or too low a standard, or underestimating the effect upon timber volume outputs Some suggested that we explore in detail the use of uneven-aged management or a "roaded natural dispersed recreation" type of management in place of some corridors Several respondents were supportive of increased slash cleanup to improve the appearance of the Forest

Oregon Natural Resources Council recommended more visual corridors, preservation of visual quality along trails and at trailheads, and refinement of the visual management strategy to leave more large trees per acre than proposed The Harney County Court supported maintenance of the existing old-growth ponderosa pine character along major Forest travel routes. The Columbia River Inter-Tribal Fish Commission and the Monument Soil and Water Conservation District stated that planning for scenic quality should do more than erect a facade along roadways. The Northwest Forestry Association and others who supported a Preferred-Plus Alternative, felt that areas managed for visual quality objectives of retention and partial retention, should be far more limited than in the Proposed Plan and the effects of such management should be more fully disclosed. They also urged more use of uneven-aged management to ameliorate visual impacts of timber management

## Forest Service Response

There are some significant differences between Alternative F (the Preferred Alternative in the Draft EIS) and Alternative I (the Preferred Alternative in the Final EIS) in how the Forest will appear. In Alternative I, approximately 30 percent of the suitable forested lands will be managed under uneven-aged management prescriptions. These include areas managed under riparian zone prescriptions and the foregrounds of corridor viewsheds. There was very little change in the amount of area allocated to visual corridors (Management Area 14). The most significant change is the addition of ponderosa pine stands that are available to be managed under uneven-aged prescriptions.

*In addition to the acres in uneven-aged management there will be 81,320 acres of wilderness, approximately 132,000 acres in semiprimitive nonmotorized, semiprimitive motorized, and wildlife emphasis allocations, and about 73,000 acres of dedicated and replacement stands of old growth*

The combination of all of these allocations will create a mosaic of different intensities of vegetative management on the Forest. Certainly, there will be areas in the Forest where intensive timber management will dominate the character of the Forest, but the overall character of the Forest will change less dramatically than that presented in the Proposed Forest Plan

The National Forest visual resource management system was designed to maintain those areas in a visually pleasing condition that are most often seen by the visually sensitive public. All areas of the Forest are not under the same scrutiny by the visually sensitive public. Therefore, areas were identified where the public is most sensitive to the scenic qualities of the Forest. These are primarily road and trail corridors and heavily used recreation sites. The area that can be seen or potentially seen, based on landform, will be managed to maintain a natural appearing to moderately altered character. Areas outside these visually sensitive areas will be managed with emphasis on resources other than the visual resource. This does not mean that all acres outside corridor viewsheds will be heavily altered in appearance

In the foreground distance zone of the corridor viewsheds, the emphasis will help to create fairly open stands of large diameter trees, where possible, on 20-40 percent of the forested land at all times

## WATER RESOURCES

### Comment Summary

The Northwest Power Planning Council, Columbia River Inter-Tribal Fish Commission, Wilderness Society, Oregon Environmental Council, Fish and Wildlife Service, Environmental Protection Agency, State of Oregon Department of Environmental Quality, Oregon Natural Resources Council, Trout Unlimited, and the Monument Soil and Water Conservation District, as well as others, commented that the standards, monitoring plan, and information provided about watershed management and protection of water quality were too general and insufficient to protect this resource. Reliance on "best management practices" (BMPs) without data to assess their effectiveness was not considered adequate mitigation or protection. Cumulative effects of roading, grazing, and timber management individually and collectively were of serious concern to these respondents. For example, the 10-year timber sale program indicated numerous sales on tributaries to the Middle Fork of the John Day River within the next seven years, but the cumulative effect of these sales on this major river were not disclosed.

The Northwest Forestry Association noted that various environmental groups were likely to attack the Forest's conclusions about water quality and quantity, and therefore requested further description of the scientific uncertainty involved in tying Forest management practices to effects on water. They stated that they did not perceive a measurable risk of adverse impacts on water quality and felt that proper watershed management including sound timber sale design and mitigation measures would provide high qual-

ity water The Western Wood Products Association asked for documentation of the generalized statements that timber management increases turbidity and sediment water temperature and increased streamflow. They felt that the sediment index model was not adequately described and that timber management in riparian zones could have a positive effect on low flow volumes

The State of Oregon Water Resources Commission requested that the Final Plan reference their water use programs for the John Day and Malheur Basins commentors requested that information be provided to identify which streams were not currently meeting state water quality standards They also requested reasons for this situation, and the measures planned to correct the situation Identification of woody debris objectives for various stream types was requested as well as a description of the connection between those goals and snag potential requirements The State Water Resources Commission and other commentors said that the planning documents did not adequately address the impacts of the alternatives on runoff and streamflows during low-flow periods They stated that timber management activities would have significant impact on streamflow and peak runoff periods There are also numerous opportunities to affect both streamflow and peak runoff periods through watershed management activities and riparian management designed to improve water retention capability and raise water tables

#### Forest Service Response

Unlike other eastern Oregon Forests, the Malheur National Forest has numerous rivers and streams It is hard to walk for any length of time in the Forest without seeing several water channels of some type However, the amount and timing of running water in those channels fluctuates drastically due to the uncertainty of weather in this arid land A great deal of land falls within the zone of influence for all of these streams and with so much land influenced, virtually every resource activity will in some way affect the water resource

In response to public input and recent evaluation, the standards, monitoring plan, and management strategies have been rewritten to make them more specific and measurable (Forest Plan, Chapter IV, Section E and Section F and Final EIS, Chapter V, responses to riparian and fisheries public comments) Additional management standards have been included in Management Areas 3A and 3B (non-anadromous and anadromous riparian areas) The standards which specifically relate to and strive to improve water quality include:

- a Protect instream flow on National Forest System Lands through critical analysis (via NEPA) of proposed water uses, diversion, and transmission applications and renewal of permits
- b Achieve instream flow protection by.
  - (1) Filing protests with States where applications are made that adversely affect National Forest resources
  - (2) Asserting claims for this water under Federal or State laws where applicable
  - (3) Inserting protection measures into special-use permits
  - (4) Reaching formal agreements over use

The Forest also recognizes the purchase of water rights and impoundments as other means for reducing water quality impacts

In addition to improved standards, a riparian inventory will be performed on the entire Forest based on the process described in "Managing Riparian Ecosystems (Zones) for Fish and Wildlife in Eastern Oregon and Eastern Washington" 1979 This inventory procedure will evaluate the present condition of riparian habitat, its potential for improvement, and provide a basis for establishment of riparian area habitat management objectives for all riparian dependent resources.

The riparian inventory that will be implemented on the Forest will accomplish the following

- a Identify and prioritize riparian areas where high riparian resource value potential exists
- b Evaluate riparian areas using parameters such as percent stream surface shaded, percent stream bank stability, percent streambed sedimentation, and percent grass, shrub, and tree cover
- c Determine the site potential of each reach for vegetative response, the time frame required to attain the desired response, and the management prescriptions under which the objectives can be attained.

The 235 miles of "unsatisfactory" riparian areas as referred to in the Draft Environmental Impact Statement is now included in the Forest Plan (Appendix A, Activity Schedules) These are backlog watershed improvement needs (WIN) projects. On an average 3.3 miles or 100 acres per year of backlog watershed improvement needs (WIN) projects will be completed. These WIN projects have been prioritized on each ranger district. Projects will be accomplished throughout the entire Forest by working through the district priorities from high to low. These WIN projects have been identified on a Forest-wide map which is available for review in the Supervisor's office.

Cumulative effects is also of special concern when dealing with the water resource. A Forest-wide analysis of cumulative effects is not sensitive enough to determine if individual watersheds will be adversely effected. There have been a number of small watershed studies, typically 100 acres in size or less, where change in streamflow have been measured, (i.e., before versus after timber harvest). The general conclusion is that temporary on-site increases in annual and summer flows normally occur. Effects on peak flows are inconclusive. Increases in annual and low flows are greatest in moist environments and least in arid areas. While initial on-site increase may be substantial, they are too small (less than 5 percent) to be measurable in larger watershed, where only one to two percent of the area is harvested annually. This is due to vegetation re-growth in harvested areas.

In watersheds where project scoping identifies an issue or concern regarding the cumulative effects of activities on water quality or stream channels, a cumulative effects assessment will be made. This will be undertaken in order to determine the effects of management activities on small subwatersheds throughout the Forest. An issue that occasionally arises is one which addresses the effects of timing on water runoff within certain subwatersheds. To facilitate an analysis, the Forest has been further divided into logical subwatersheds. A harvest effects model will be applied which converts a range of harvest activities to a common factor and applies a recovery rate to simulate hydrologic or watershed recovery over time. An interdisciplinary team composed of soils, watershed, fishery, and timber management specialists will perform an evaluation which will consider such factors as geology, soils, stream condition class, fisheries value (including potential), roads, timber type and grazing effects. Timber harvest is the driving factor for cataloging watershed impacts. Harvest activities alter the vegetation on a watershed bringing about changes in interception, snow accumulation and snow melt, soil moisture, infiltration, exposing mineral soil to erosion, potentially affecting water quality, quantity and timing.

There are a number of other management practices either currently, ongoing or planned which individually help to retain water on the Forest for maintenance of summer low flow conditions. Various methods are used to increase the infiltration rate so that the water percolates into the lower horizons of the soil profile or supplies water to the groundwater zone. For instance, leaving more slash on the ground is beneficial for the soil productivity, reduces the potential amount of soil compaction from tractor piling slash, and provides a roughness to the ground surface which may act as sediment traps/filters, and increase

the infiltration rate into the soil. Soil monitoring is also done to ensure that excessive amounts of soil are not compacted, displaced, or puddled. Other management practices used include grass seeding and watershed and fisheries improvement projects.

Overall, the practices and changes in management strategies which protect or enhance not only the riparian areas, but the uplands as well, are looked at as a cumulative effort of maintaining streamflows throughout the year. A healthy riparian area is one which can absorb water during the spring and make it available for streamflow during the summer. This is one benefit of improved livestock grazing and changes made in harvesting of timber in the riparian area.

Upon review, the Forest has concluded that the the Forest Plan is consistent with the objectives and strategies of the John Day Basin Plan (i.e., the Water Resource Commission Recommendations, section B2 which refers specifically to the Malheur National Forest). The John Day Basin Plan states that forest managers "should minimize impacts on stream systems by taking the following actions: 1) Block and revegetate Forest roads where appropriate, 2) Use existing road networks to the maximum extent possible in future harvesting, 3) Locate future roads outside riparian zones whenever possible, 4.) Design future roads for temporary use and to minimize effects of concentrated surface runoff, 5) Leave the maximum amount of harvest residues on site, consistent with other management practices, 6) Continue and expand efforts to improve livestock distribution and grazing management and develop watering facilities away from streams, 7) Continue and expand riparian protection and restoration efforts."

Management direction which appropriately responds to the above mentioned objectives can be found in the Forest Plan. Most specifically, the Forest-wide standards (Chapter IV, Section E, Forest Roads and Trails) and Management Area Standards (Chapter IV, Section F, Management Areas 3A and 3B).

The Clean Water Act of 1972, Section 319, as amended in 1987, requires the State of Oregon to assess the current status of non-point source problems. The State will determine those waters that will not meet the goals of the Act, to determine those non-point source activities that are contributing pollution, and to develop a process of determining best management practices to reduce such pollution to the "maximum extent practicable." The forest reviewed and updated the assessment of non-point water pollution problems in Grant and Harney County through interaction with the following agencies, Soil Conservation Service, Agricultural Stabilization Conservation Service, Grant County Extension Agent, Prineville and Burns District of the Bureau of Land Management, Oregon Department of Fish and Wildlife, and Grant Soil and Water Conservation District.

The Forest Service has a long history of applied management practices utilizing a great deal of experience throughout all levels of the organization. The research branch is continually focusing on research which is applicable to the person doing the job on the Ranger District. Their mission is to perform research which answers questions generated in the field. A large amount of water quality data has been collected and analyzed, and the findings have been used to address water quality and quantity issues. This research has demonstrated that timber management activities can be performed with a minimum amount of adverse impact to water dependent resources, given proper application.

The main goal of best management practices (BMPs) monitoring is to provide the resource manager with information regarding the effects of management activities on the water resource. Best management practices are defined as, "Methods, measures or practices selected by an agency to meet its nonpoint source needs. BMPs include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. Best management practices can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters." There are generally three accepted types of BMP monitoring: (1) Implementation, (2) Effectiveness, and (3) Validation. For additional information on best man-

agement practices, see Final Environmental Impact Statement, Appendix I and also the Forest Plan, Chapter IV, Section E.

## WILD & SCENIC RIVERS

### Comment Summary

Public response to the Draft Environmental Impact Statement and Proposed Forest Plan contained 70 responses commenting on the subject of wild and scenic rivers. All called for consideration of Forest rivers for wild and scenic river status. Many were critical of the plan for not adequately addressing the issue, feeling the Forest had not met the intent of the Wild and Scenic River Act by failing to review Forest rivers for eligibility. Some respondents "formally requested" that the Forest review rivers for eligibility.

Of the 46 respondents who listed specific rivers for possible inclusion in the wild and scenic river system, all but eight listed only the John Day, Malheur, and Silvies rivers. Other rivers receiving some mention included the South and Middle Forks of the John Day, North Fork Malheur River, Little Malheur River, Murderers Creek, Deer Creek (tributary to South Fork John Day), Myrtle Creek, Bear Creek, East Fork Canyon Creek, Crooked Creek, Pine Creek, and Calamity Creek.

### Forest Service Response

During the comment period following the release of the Proposed Forest Plan, the Forest received several recommendations of waterways to be evaluated for eligibility under the Wild and Scenic Rivers Act. The Forest convened an interdisciplinary team to conduct an eligibility review of all major waterways, and any other waterways, that the public commented on. As a result of this review, two rivers were found to have outstandingly remarkable characteristics which meet the criteria for eligibility for the wild and scenic rivers system.

*In the 1988 Omnibus Oregon Wild and Scenic Rivers Act the North Fork Malheur and Malheur Rivers were designated as additions to the Wild and Scenic Rivers System. The North Fork Malheur River has 25.5 miles designated as "scenic" from the headwaters to the Forest boundary. The Malheur River has 13.7 miles designated, with the section from Bosonberg to Malheur Ford as Scenic and Malheur Ford to the Forest boundary as wild.*

## WILDERNESS

### Comment Summary

The contribution of the Malheur National Forest toward meeting the national demand for wilderness in the long-term was a concern of several respondents, including the Columbia River Inter-Tribal Fish Commission, the Confederated Tribes of the Umatilla Indian Reservation and the Washington Native Plant Society. The latter two groups expressed support for the recommendation of Pine Creek area for wilderness designation to meet that demand in the future and because of the unique attributes of that area.

Management of existing wilderness was a concern of several respondents. The Environmental Protection Agency commented that Goal #9 in the Proposed Forest Plan regarding wilderness was confusing and not easily definable. The Washington Native Plant Society raised several questions about vague language regarding insect and disease treatment in wilderness and supported the natural role of insects and diseases in wilderness. Other respondents urged us to consider alternatives which would declassify portions of existing wilderness and manage them for uses such as timber production. The Wall Creek drainage of the Strawberry Mountains as well as Monument Rock Wilderness were specifically mentioned.

It was suggested that the roads at Indian Springs campground and McNaughton Springs campground should be closed to reduce the volume of recreation use in the Lakes Basin. Other respondents, such as the Columbia River Inter-Tribal Fish Commission, stated that the Forest would not need to regulate use if more roadless area was retained on

the Forest. Still other respondents felt that little or no roadless areas would need to be retained if the Forest promoted more intensive use of the existing wildernesses.

**Forest Service Response** Wilderness is legislated by the Congress of the United States, therefore, it is not the prerogative of the National Forest to classify or declassify wilderness. Those interested in classifying or declassifying wilderness, should contact the appropriate Congressional Delegation.

The Pine Creek roadless area, designated a further study area, was evaluated for wilderness designation. The area is not unique, in terms of its natural features, relative to other similar drainages on the Malheur National Forest. It was proposed for wilderness designation only in Alternative C of the Draft Environmental Impact Statement, and the proposal received little public support. It is brought forward into Alternative C-Modified of the Final Environmental Impact Statement. However, under Alternative I (Preferred), it is not being proposed for wilderness in the Forest Plan.

Comments were received that referred to the interrelationship between roadless areas and wilderness. Reference was made that more roadless areas would reduce pressure on wilderness. Conversely, other proposals were made to reduce roadless areas and promote more intensive use of wilderness. Wilderness, by legislative definition, is an area where change occurs by natural process unaltered by man's activities. Recreation use of wilderness is an acceptable use as long as it does not accelerate the rate of natural change. In managing wilderness, the Forest will encourage the dispersion of recreation use throughout the wilderness, but this will not be promoting the intensive recreation use of wilderness. The Forest will manage wilderness under a policy of non-degradation. If recreation use is causing degradation of the wilderness, that use will be reduced to levels where degradation no longer occurs. This could involve restricting motorized access to wilderness from the outside by closing roads to motorized use some distance before reaching the boundary. The intent is to promote the spontaneous use of wilderness as free from regimentation as possible, therefore going to a permit system is viewed as a last resort for regulating use. The Forest will initiate educational programs to provide people with information about how to visit and enjoy wilderness without leaving a trace of their visit.

Semiprimitive areas outside of wilderness do not have legislative restrictions, therefore the tolerance for evidence of man's activities is greater. These areas expand the capability of the Forest to provide recreation opportunities in an unaltered setting. This provides flexibility in managing wilderness by giving people options other than just wilderness to seek a setting that provides solitude far from the sight and sounds of human activity.

Wilderness will be managed for natural processes to occur unaltered by man's activities. There may be some exceptions where man may have to intervene in this process. One such case could occur in the event of a major insect epidemic. Insects play a natural role in the process of ecological change and their role will be untampered with in wilderness until such time where the continued expansion of the epidemic threatens to move out of wilderness onto lands with other ownerships and/or resource objectives. If this occurs, steps may be taken to treat the insects to protect investments outside wilderness (Forest Plan, Chapter IV, Section F).

A second example of man's intervention could be planned ignitions. They would be used to reduce unnatural buildup of fuels as a result of artificial fire suppression activities. Such ignitions would be necessary to reduce the risk and occurrence of unnaturally intense wildfire within or escaping from the wilderness due to heavy buildup of fuels, which under natural conditions would have been consumed over time in several less intense fires. The exact role of fire in wilderness will be defined in the Wilderness Fire Management Plan.